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CONTAINING

FAMOUS TOURS AND SCENES IN THE OLD WORLD

WITH

GLOWING DESCRIPTIONS OF BEAUTIFUL FRANCE, GREAT BRITAIN AND IRELAND, SUNNY ITALY, CLASSIC GREECE, TRAVELS IN SPAIN, SWITZERLAND AND THE FAR FAMED ALPS, QUAINT OLD HOLLAND, THE GREAT DOMINION OF THE CZAR, ETC.

TOGETHER WITH

THE WONDERS OF ASTRONOMY

THE WHOLE COMPRISING

A VAST TREASURY OF THE MOST INTERESTING AND VALUABLE INFORMATION

BY

CHESTER R. STRATTON
The Well Known Author and Traveller

Embellished with 100 Fine Engravings of Striking Scenes Illustrating the Manners and Customs of the People, Etc. Etc.

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PREFACE.

THIS great work combines a vast amount of interesting and valuable information with fascinating descriptions of scenes in the Old World. To open it is to see at once its worth, and even a hasty glance will prove it is a work that should be found in every home.

It embraces all that is striking and novel in the various countries of Europe. The amazing Discoveries of our great travellers, with the exciting Explorations, daring deeds and perilous adventures by which their marvelous successes were won are here related and illustrated with attractive engravings.

Thousands cross the ocean yearly to view the remarkable sights of Great Britain and the Continent. This book places these before the reader in the most attractive form. He visits the far-famed Alps, the vast dominion of the Czar, the dykes and towns of quaint old Holland, all interesting localities in Eastern Europe, in sunny France, in beautiful Italy, in the German Fatherland, in Spain, Great Britain and Ireland.

The aim has been to furnish a description of the countries and the peoples of Europe, which is free from dull statements and dry, technical terms, which is fascinating to old and young alike, and by the vivid portrayal of facts surpass in interest the creations of romance. This aim we believe is fully realized.

CHESTER R. STRATTON.

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CATHEDRAL OF NOTRE DAME
ARCH OF TRIUMPH
FRANCE
EIFFEL TOWER
GRAND OPERA HOUSE
BOULEVARD MADELEINE

CHAPTER I.

FASCINATING SCENES IN FRANCE.

Extent and Situation of the Country—Mountains and Lowlands—Former Haunts of Wolf, Boar and Deer—Fine Climate—What France Exports—Splendid Paris—River Seine and Bridges—Palaces in the Heart of the City—Magnificent Gardens—Heroes, Nymphs and Fauns—A Celebrity and his Nosegay—Favorite Resort of Napoleon III—Celebrated Cathedral—"A Book in Stone"—Gigantic Proportions and Superb Symmetry—"Gamins" of Modern Paris—Songs in a Hidden Gallery—Rich Decorations—Women Elegantly Dressed—A Historic Edifice—Grand Sight—Scene of Coronation and Royal Marriage—Palace and Gardens of Versailles—Once a Magnificent Home of Royalty—Renowned Personages—Startling Scenes in Earlier Days—Ancient Churches—Palace of Fontainebleau—Place Where the Great Napoleon Signed his Abdication.

FULLY three and a half times larger than England, France is singularly well situated for commerce. As Russia occupies the broadest part of the European Continent, so France stretches across its narrowest span, and, lying between the Mediterranean and Atlantic, has good harbors in both seas. From Italy it is separated by the Jura Alps, from Spain by the rugged Pyrenees. The boundary of the country on the side of Belgium and Germany is a mere line on the map, guarded by a chain of fortresses round which international jealousies are likely to circle for ages yet to come. Corsica, a rugged forest-covered mountainous island of the Mediterranean, is also an integral part of France, so far as its government is concerned, though the people are more Italian than French, and cherish strong prejudices, which a century of Gallic rule has not yet entirely effaced.

France is not an elevated country outside the ranges mentioned, yet Mont Blanc, the loftiest peak in Europe, rises just within its borders. The lowlands of France are not, however, flats, as in the more northerly countries, but rolling, undulating districts lying for the most part along the Atlantic border, and in the Valley of the Rhone opening into the Mediterranean. About one-eighth of the surface is still wooded, in spite of the enormous destruction of timber which has been going on during the last few centuries, the forests of Orleans and Fontainebleau being specimens of what at one time prevailed over much of the country con-

MEETING OF THE STATES GENERAL OF FRANCE.

trolled by the despotic feudal proprietors who took their pleasure in the widespread haunts of the wolf, the boar and the deer.

But with slight exceptions, there are few parts of France incapable of supplying food for man and beast. The climate is one of the finest in Europe—mild, equable and healthy—in spite of the hot winds from Africa, which sometimes impinge on the southern districts, and the chilly "mistral" which sweeps down from the Alps in the North. The vine is one of the plants regularly grown in all the departments except the north-western, the regions of Champagne, Burgundy, and the country in the vicinity of Bordeaux being the best fitted for the protection of the grapes from which the wines known under these names are made.

Great Variety of Exports.

The olive flourishes in the valley of the Rhone, the maize is also a profitable crop, and in the maritime country opposite England wheat and other cereals, along with all kinds of temperate fruits, are grown in great abundance and perfection, while the labor of the peasants results in the exportation of prodigious quantities of fowls, eggs, butter and vegetables to England, which constitutes their most profitable market. The extreme subdivision of farms acts prejudicially on pastoral pursuits. In the number and quality of the sheep, cattle and horses, France is far inferior to Germany and England, though, again, the general comfort, thrift, and prosperity of the people are superior to what obtains in the latter country, and even in the former, which the poverty of the soil, and the oppressive military and other laws, handicap.

The Brilliant French Capital.

Paris, the gayest capital of modern civilization—the goal of pleasure-seeking pilgrims from every quarter of the globe—the city that, according to Victor Hugo, combines in itself Athens, Rome, and Jerusalem—the apotheosis at once of beauty, strength, and truth—Paris, like most other cities of historic fame, has gradually risen from an insignificant beginning to its present height of power and glory. Across the broad hill-encircled basin, upon which the modern city stands, flows the river Seine, hemmed in on either bank by five miles of quays, spanned by five-and-twenty bridges, and passing on its way palaces, churches, and edifices, linked with innumerable historic and legendary associations. The river in its course encircles two small islands, and on the larger of these, the nucleus was formed of that grand aggregate which after nearly twenty centuries of growth and development is now known to all the world as Paris.

Old chroniclers have recorded many fanciful legends of the origin of

the city, but the earliest authentic history we have is of a hunted tribe fleeing from some unknown locality, and treating with the Senones, a tribe of the Gallic Confederation, for a strip of land on which to settle. The fugitives were known as the Parisii—that is, borderers. On seven small islands of the Seine, that have now become two, these rude hunters and fishers built their village of thatched mud huts, and called it Lutetia—"dwelling of the waters." As skillfully as they knew how they fenced in their primitive citadel, and connected it with the mainland by two bridges. On both sides of the river were marshes and forests, abounding

PONT DES ARTS, LOUVRE AND TUILERIES.

with wild boars and other game. Here they sought their prey, and on the high places now known as Mont St. Geneviève, Montmartre, and elsewhere, they reared their rough-hewn altars, and celebrated the mystic rites of their religion.

No less than sixty acres in the very heart of Paris were covered by the magnificent group of palaces known as the Louvre and the Tuileries. The latter was destroyed in 1871, and its ruins were removed in 1882 by order of the municipality. The Louvre, with its grand façades, pavilions, and colonnades, and its splendid halls, saloons, and galleries, still stands as the proudest monument of the ancient royalty of France, as well as of

her imperial splendor in modern days. Down to the water's edge in ancient times stretched a dense forest, in which King Dagobert built himself a hunting-seat, afterwards transformed by Philip Augustus into a citadel and a group of towers. This stronghold was used by succeeding monarchs as a State prison. It became dilapidated, and although restored and furbished up for the reception of the Emperor Charles V., the result was so unsatisfactory that Francis I. determined to rear a stately modern palace in lieu of the old feudal castle. Pierre Lescot, the great architect, aided by the noted sculptor Jean Coujon, commenced the work which has from time to time afforded occupation for French monarchs

PALACE OF THE TUILERIES, DESTROYED BY THE COMMUNE, 1871.

and architects ever since. Three Queens—Catherine de Medici, Marie de Medici, and Anne of Austria—successively lavished sumptuous decorations on the interior; Louis XIV. and Colbert built the eastern and southern façades. But the King relinquished his project of completing the work in favor of his new caprice at Versailles, and a considerable part of the building was roofless till finished by Napoleon I. His nephew, Napoleon III., at a cost of 25,000,000 francs, made vast additions, building elaborately-sculptured pavilions, and porticoes, and colonnades, until the Louvre and Tuileries formed one immense and stately pile completely surrounding the Place du Carrousel.

The Garden of the Tuileries, if perhaps deserted now to some extent

by the fashionable world for the Champs Elysées, is still a favorite resort of thousands of Parisians, and a very paradise for nursemaids and children. In the time of Louis XIII. there were gardens here, much smaller than now, but still picturesque, in their way, and decidedly fashionable. There was a wood much frequented by young lovers, a lake with swans, an aviary, a labyrinth, an echo, and so forth.

Then, in 1630, Renard, by royal command, cleared a space, and planted rare flowering plants, and built a royal dog-kennel. In the reign of Louis XIV. the celebrated landscape-gardener Le Nôtre gave to the gardens of the Tuileries the same general features they now retain—broad gravel walks, smooth lawns, gay parterres, shady avenues of limes and chestnuts, and basins and fountains with marble divinities, heroes, nymphs, and fauns, to meet the eye at every step.

THE ARCH OF TRIUMPH.

Many a civic and fraternal festival did the Republicans hold beneath the shade of the grand avenues of these gardens. Two hemicycles of white marble still remain as a memorial of that epoch; they were designed by Robespierre for a council of old men to preside over the floral games in the month of Germinal (21st March to 19th April). The grand *fête* of the "Supreme Being" was held here, when Crime and Vice were burnt in effigy, and Robespierre, walking in splendid raiment at the head of the National Convention, and carrying a nosegay nearly as big as himself, excited jealousy and paved the way for his doom. The new road in front of the palace-ruins marks the site of the "Reserved Garden," where Napoleon III., for hours at a time, watched his child as he amused

himself with his costly toys, undreaming of the "baptism of fire" at Saarbrück and the awful death in Zulu-land.

Looking up to the front of the cathedral of Notre Dame from the Place du Parvis, on the venerable Isle St. Louis, with "God's Hotel," the great hospital on one hand and the vast lime-stone mansions of new Paris on the other, the effect is grand. The sunlight breaks into brilliant tracery of gleams over the almost countless statues ranged above the huge doors, and a roseate glow is reflected from the rosace in the centre of the façade. Firmly founded as the everlasting hills, its foundation-stones lying upon the very river bed of the Seine and on the ruins of a pagan temple, it is one of the most impressive monuments in Europe. Victor Hugo calls it the "book in stone," and, indeed, it is at once an epic and a romance. It has been the scene of numerous historic transactions.

VESTIBULE OF THE NEW OPERA HOUSE—PARIS.

The sturdy majesty of its form—that of the Latin cross—and the superb symmetry of its gigantic proportions, give it an epic force; while the wonderfully imaginative decorations of its towers and balconies, the vast and dizzy heights, the whelming abysses, the gorgeous outlook, and the fine flow of fancy, even in the smallest detail, give it a romantic character. The wealth of legend, too, lavished upon it by a thousand

artists, poets and dreamers, has made it stand out weird among the churches. It has infinite transition within its limits for him who wanders aright in its galleries. The great recess at the altar's rear, where the red and black-robed priests are chanting continuous psalms, seems like a bit of life cut out of the Middle Ages.

There is only one thing to destroy the illusion, and that is the little

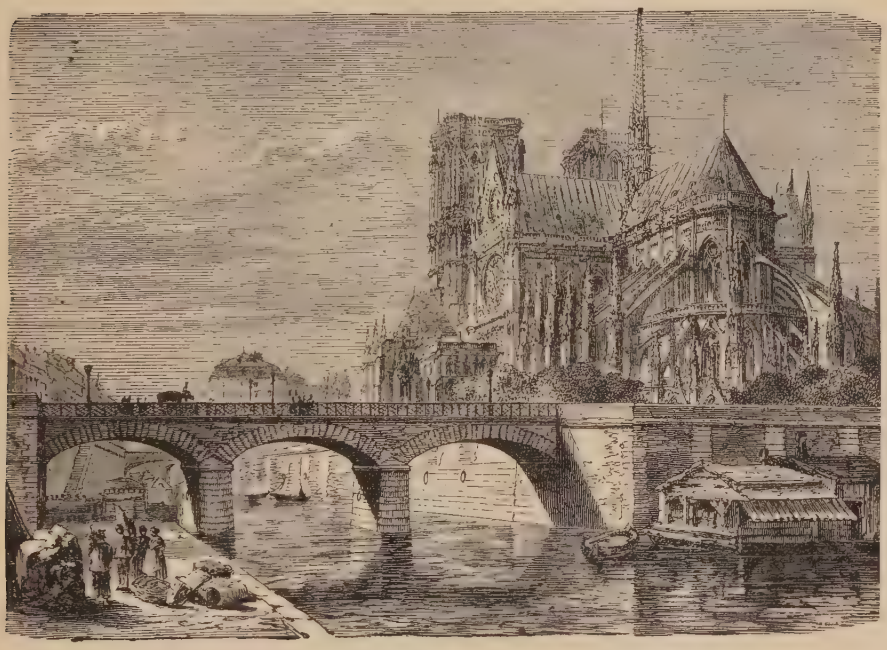
FRENCH HAWKER CRYING HIS WARES.

group of white-stoled boys who swing the censers before the inner altar, and who now and then sing in childish voices. There is no mistaking these urchins; they are all the irreverent, incredulous, skeptical "gamins" of modern Paris, utterly devoid of serious beliefs and superstitions. In another portion of the cathedral you shall see a group of market women, bare-footed, coarse-haired, grimy-armed, savoury of the fish-barrel and the potato-sack, kneeling reverently before little straw-bottomed chairs, and listening with tears in their tired eyes to the pure voices of the women singing in some hidden gallery.

Before the entrance to the grand aisle sits the withered old man who

holds the brush from which the holy water is sprinkled upon the worshippers. He sits there, under the sombre shadow of the great pillar, all day long. Never a gleam of sunlight touches him; never a soul salutes him, every one is too busy with his or her conscience, and he sprinkles, sprinkles, sprinkles, dreamily afar off, as if he had eaten of the lotus. In the lateral chapels, many of which are extremely rich in decoration and design, elegantly-dressed women kneel for hours together, praying for the remission of sins for which they believe they are easily pardoned.

Ah! here is a dingy and grimy old door leading up great stone steps



FAMOUS CATHEDRAL OF NOTRE DAME.

to the cathedral roof; where the lover of the picturesque may wander for hours without ever wearying. It is a long way up, and the steps are worn and old; millions of feet have made great creases in them. Suddenly you stagger out upon a wide platform, and Paris, with its curving Seine—Paris, with its hundred palaces, its giant avenues, its vast towers, its glorious parks, lies spread before you. You feel as if breathing a purer air. You are of the world, yet separated from it. You are elated, jubilant, exalted.

The hum and din of the great capital smites gently upon your ears. A strong thrill of excitement runs through you as you press to the outer

railing, and look down from the dizzy height into the place below. Are those ants crawling on their ant-hill, or are they really men in the market place? As you get tired and seek a spot to repose, the old woman who has her home in a little house in the belfry invites you to a place on a rustic bench.

Notre Dame has had its day of splendor and consummate glories. Since its first stone was laid in the tenth century, it has seen riots, murders, vast mobs of thieves, iconoclasts; and kings have come there to be crowned and married. The old cathedral is essentially a Parisian pro-

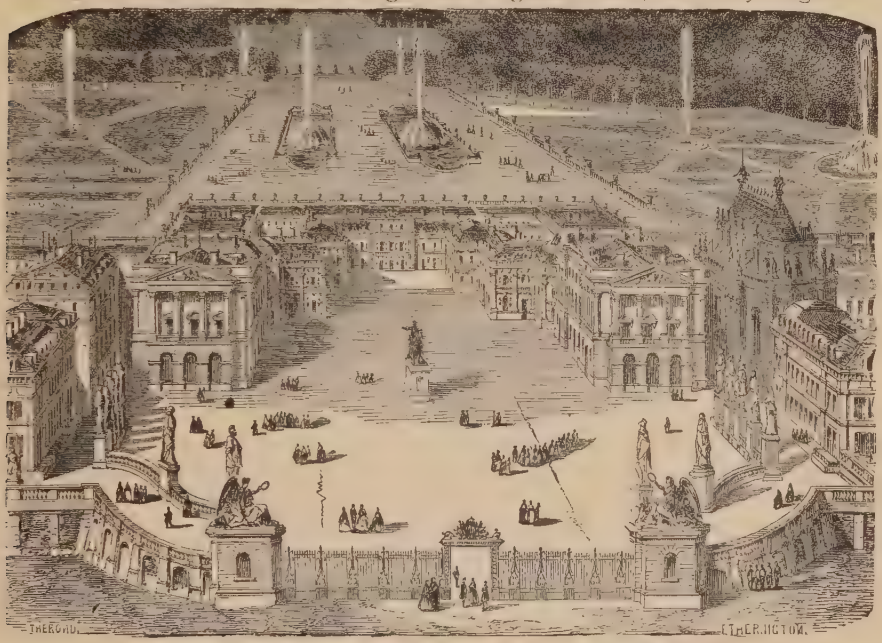
CHURCH OF SAINT EUSTACHE.

duct: its Gothic proportions were hewn out of the limestone quarries in and around the city, and for many hundreds of years architects wrought into it their hopes, their fears, their aspirations.

There were long epochs between its beginning and its completion, the first stone was laid in 1163; the choir was finished in 1185; the triforium of the nave in 1215; the chapels of the apsis were built in 1296; and the church was very frequently altered and mutilated during the twelfth and thirteenth centuries. When the restoration began, in 1845, it was feared that much of the antique beauty of the venerable structure would be lost;

but the French of to-day, with a praiseworthy care for details, have copied in its exactest outline every stone and ornament of the edifice, and it stands rejuvenated in large degree.

There are few grander sights than that of the old cathedral, filled with twenty thousand worshippers, kneeling mutely in the sombre shadow of the great pillars, while from the organ come thunderous outbursts of music, and from the concealed galleries the pure voices of chanting women. Napoleon I. and Josephine were crowned here. Napoleon III. was married here. It seems almost like yesterday when the Commune sternly demanded the silver images of the great altars, that they might be



VIEW OF THE PALACE AND PARK OF VERSAILLES.

melted into money with which to purchase bread for "the armies of Paris." The Commune made an effort also to destroy the venerable cathedral by fire, but it was frustrated, and the florid spires and towers still kiss the crystal sky.

Outside the walls of Paris are many sites of historic interest. Foremost of these in point of celebrity comes Versailles, with its grand palace and gardens, created by Louis XIV. at a cost of not less than forty millions of pounds sterling, necessitating increased taxation, that hastened the coming of the Great Revolution. Its splendid saloons and apartments, associated with all the glories and scandals of the French Court

from the youth of Louis XIV. to the Revolution; its vast collections of pictures, portraits, busts, and statues; its terraces, avenues, parterres, orangeries, bowers, lakes, and grand fountains: all these and other attractions, which draw thousands of visitors to this magnificent home of royalty, would require a chapter to describe in detail, while to narrate the historic memories of the palace would be to write the history of France for a century. An innumerable train of kings and queens, poets and philosophers, courtiers and lovely women, passed through these halls.

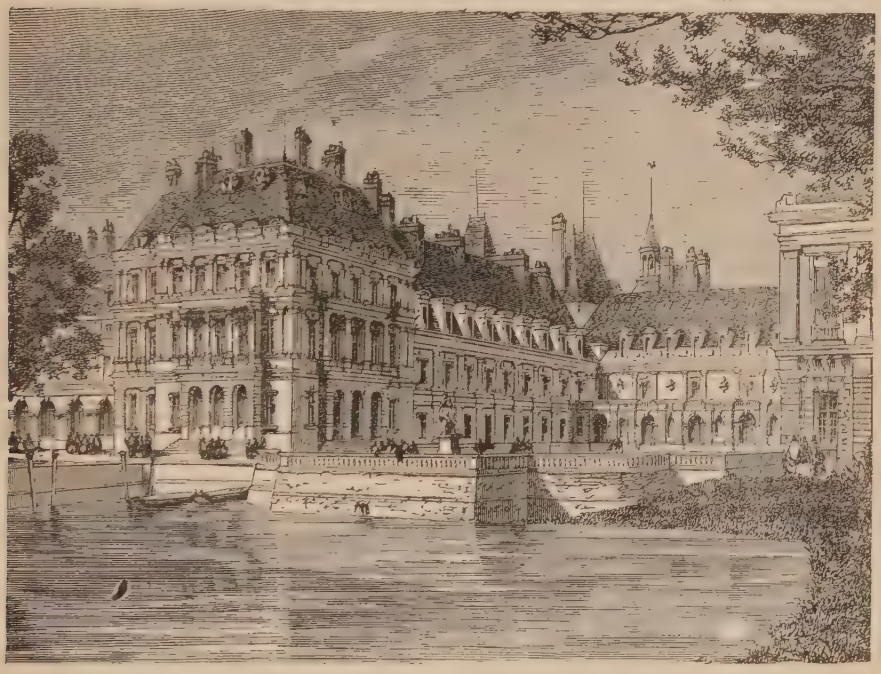
Scenes of Suprising Splendor.

Louis XIV. changed his predecessors' hunting-lodge at Versailles into a gorgeous palace for Madame de la Vallière. When that lady fled, to die in a convent cell, the graceful and witty Madame de Montespan, with her blue eyes and fair waving hair, reigned here in her stead. When she also sought the cloister, Madame de Maintenon succeeded, and was married to the King in 1686. Magnificent and lavishly extravagant were the Court festivities in those days. At the marriage of the Duke of Burgundy, 4,000 wax candles lit the Great Gallery, that could scarcely contain the throng of courtiers and grand ladies brilliantly dressed and sparkling with flashing gems. Amongst that gay crowd moved generals like Turenne, statesmen like Colbert and Louvet, men of letters like Racine and Boileau and Molière, and preachers like Bossuet and Massillon and Père la Chaise—the latter zealously working to bring about the Revocation of the Edict of Nantes.

Here Madame de Maintenon watched the death-bed of Louis XIV., and then retired to St. Cyr, to end her days in prayer. Louis XV., whilst loving, in a fashion, his "frozen Venus," Queen Maria Leckzinska, brought to Versailles Madame de Pompadour, who won his admiration whilst hunting in the forest. Her name for twenty years stood foremost in France, till she died in the palace, suffering in mind and body. Clad in a robe of serge, and with a wooden cross on her bosom, she was carried hence with a pauper's funeral, as she had directed, to her grave in the Capuchin convent; and the King, who watched the scene from the balcony, soon solaced himself with the society of Madame du Barry. When the last miserable years of Louis XV. were ended, the Du Barry was sent adrift, and a brilliant Court soon clustered round the fair Queen Marie Antoinette. Here Burke saw her, and compared her to "the morning star, full of hope, and splendor, and joy." In the distinguished crowd that surrounded her, beauty and courage, and wisdom and wit, were conspicuous.

But whilst the Court pursued its glittering round of pleasure, and

Louis XVI., busied himself with his beloved turning-lathe and forge, ominous clouds were gathering. Soon those clouds broke in the tempest of revolution. A ferocious crowd carried off the King and his family in triumph to Paris, and the Palace of Versailles ceased to be a royal residence. It was stripped and devastated, and turned into a manufactory of arms. Napoleon wished to re-furnish it, but could not spare the money. Louis Philippe spent large sums in restoring the palace, and made it what it now is—a grand historical museum. On the 18th of January, 871, the Great Gallery beheld a novel scene, for here King William of



PALACE OF FONTAINEBLEAU—THE FOUNTAIN COURT.

Prussia was declared Emperor of Germany by the generals of the army that was then besieging Paris.

The Great and Little Trianon are for the most part associated with the royal mistresses. At the latter Louis XV. died of small-pox, whilst the Du Barry was anxiously watching for the signal-light in his window which told her that her reign was at an end. Hither came Marie Antoinette in her straw hat and white muslin dress to cultivate her flowers, and play at being dairymaid and shepherdess.

Fontainebleau, where kings and rulers of France took their pleasure in successive edifices, from the time of King Robert the Devout to Louis

Philippe, is a handsome town, with a splendid palace and a grand forest. In this palace Napoleon I. signed his abdication in 1814.

At Compiègne, where in 1430 the Maid of Orleans was made prisoner by the English, there is a beautiful palace which was always a favorite residence with the royalty of France. Here wandered Marie de Medici, watched by Richelieu's spies, till she escaped to die in poverty in a foreign land; here strayed young Louis XV., sighing for Mazarin's lovely niece, Marie Mancini; here Louis XVI., and afterwards Napoleon, came to meet their respective Austrian brides.

St. Cloud, preserving by its name the memory of the pious grandson of Clotilda, shows a mass of ruins for what was once a stately palace. In the adjacent forest Catherine de Medici and her fifty plumed damsels hunted. In the palace the line of Valois became extinct when Henry III. died by the knife of Friar Clement. Here, long after, Mirabeau, won over by the seductive grace of Marie Antoinette, mistook the signs of the times, and declared that the monarchy was saved. Here, as it were but yesterday, the young Prince Imperial was holding his youthful Court.

Places of World-wide Renown.

St. Germain-en-Laye is associated with the exiled Stuarts, who at this place plotted the restoration that was not to be. Here poor Henrietta Maria, widow of Charles I. of England, dwelt, so poor at times as to be obliged to stay in bed for want of a fire. Here Charles II. held his Court, and vainly tried to win Mademoiselle de Montpensier, the richest heiress in France. In 1689 James II. came with his troop of exiled nobles to live on the bounty of King Louis, and here the Pretender Charles Edward was proclaimed James III. of England.

Vincennes has won fame as palace, prison, and fortress. It is associated with the loves of Charles VII. and Agnes Sorel, the death of Henry V., King of France and England, and was the prison-house of hundreds of victims of the dreaded *lettres de cachet*. Here the young Duc d'Enghien was shot by Napoleon as a warning to the Bourbons.

There are scores of other interesting spots around Paris which we can but name: St. Dénis, famous for its abbey-church, and monuments of the Kings of France, rifled in a single day in 1793 of the royal remains of ten centuries; Malmaison, sacred to Josephine's sorrowing widowhood; Charenton, famous for religious controversies at the time of the League, and at the present time for its National Lunatic Asylum; Arceuil, with its magnificent aqueduct of the time of Louis XIII., and remains of an earlier and Roman structure.

CHAPTER II.

GREAT BRITAIN AND IRELAND.

The Largest City in the World—Extent of London—Square Miles—Population—Part called "The City"—Very Ancient Town—Principal Buildings, Streets and Objects of Interest—The Celebrated Westminster Abbey—Founded by Edward the Confessor—Description of the World's Most Famous Religious Edifice—Edward's Chapel—Tombs of Monarchs—Poets' Corner—Beautiful Windows of Colored Glass—Antiquity and Threatened Ruin—The Thames Embankment—Cathedral of Saint Paul—Lofty Dome—Unique Whispering Gallery—Celebrities Buried in the Crypt—Houses of Parliament—Story of the Gunpowder Plot—The Queen Opening Parliament—Description of Her Majesty in State Robes—Edinburgh—Calton Hill—Princess Street—Scott's Monument—Old Castle—Holyrood Palace—Romance of History—Trip Through Ireland—History of the Irish—Characteristics of the Celt—Fine Scenery in Ireland—Lakes of Killarney—Irish Towns—Belfast and Dublin.

LONDON is situated on both sides of the river Thames, lying principally on the north bank in the county of Middlesex. The portion south of the Thames is in the county of Surrey. The distance from London to the mouth of the Thames is about forty-five miles. The city is fourteen miles long and ten broad, thus covering an area of one hundred and forty square miles, or more ground than the District of Columbia. It had a population of 2,362,000 in 1851. At present the population is about 4,000,000. The present increase is about 44,000 per annum, or a birth every twelve minutes. It contains 360,000 houses, and the cost of food used each day is said to be $800,000. It is one of the healthiest capitals of Europe, the annual death-rate being twenty-four in every thousand; while that of Berlin is twenty-six, that of Paris twenty-eight, that of St. Petersburg forty-one, and that of Vienna forty-nine.

The portion of London called "The City," and which was the original settlement, was formerly surrounded by walls. It is situated on the Middlesex side, and lies between the tower and Temple Bar. The other official divisions of the Metropolis are Westminster, Marylebone, Finsbury, Lambeth, Tower Hamlets, Chelsea and Southwark. Of late years two social divisions have sprung up, namely, Belgravia and Tyburnia. Belgravia lies south of Hyde Park, and west of Westminster. It is the

creation of the last fifty years, and is the home of the English aristocracy. Tyburnia lies north of Hyde Park, and west of Marylebone. It is the

ELIZABETH—ENGLAND'S MOST FAMOUS QUEEN.

home of prosperous city merchants and professional men, who hope some day to be numbered among the aristocracy.

London was a town before the Roman conquest, its real origin being

lost in the gloom of antiquity. The Romans surrounded it with walls, and under them it grew and prospered. It contains many venerable monuments of the past, the most interesting of which are those which are connected with the history of England.

The modern city of London is massively built, and is in many respects the most splendid city in the world. It is the commercial capital of the globe, and consequently the wealthiest city of modern times. Its police regulations are excellent, and it is in all respects one of the best governed cities of the world.

We give in the words of Mr. Fetridge, the author of Harper's admirable "Handbook for Travelers in Europe," the following description of a run through the city: "To see and properly appreciate London in an architectural point of view, the traveler should devote one or two days to viewing its exterior. Starting from Charing Cross, the architectural and fine-art centre of the West End, the towers of Westminster Palace and the houses of Parliament on your right, the National Gallery on your left, the beautiful club-houses of Pall Mall in your rear, with Nelson, in bronze, looking down upon you from a height of one hundred and sixty feet, you proceed along the Strand, passing Marlborough and Somerset Houses on your right; through Temple Bar, which marks the city's limits on the west; through Fleet Street and Ludgate Hill, emerging into St. Paul's Churchyard, with the Cathedral of Sir Christopher Wren's masterpiece on your right, and the Post-office on your left; through Cheapside, notice Bow Church, another of Wren's best works; through Poultry to the great financial centre, the Exchange, in front of which stands an equestrian statue of the Duke of Wellington, the Mansion House, the residence of the Lord Mayor, Banks, etc.; down King William Street to London Bridge, passing in view of the beautiful monument erected to commemorate the great fire; then King William's statue.

The World's Most Celebrated Bridge.

London Bridge, from 9 to 11 A. M., is one of the greatest sights of the capital. In the immediate vicinity hundreds of steamers are landing their living freight of merchants, clerks and others for the city, amid a fearful din of ringing bells, steam-whistles, shouting carmen and omnibus conductors, while the bridge itself is one mass of moving passengers and vehicles. On your left is Billingsgate (who has not heard of that famous fish-market?); next the Custom-house, then the Tower of London, below which are St. Catharine's Docks, then the celebrated London Docks, the vaults of which are capable of holding 60,000 pipes of wine, and water-room for three hundred sail of vessels. The Pool commences

just below the bridge: this is where the colliers discharge their cargoes of coal.

The city of London derives its principal revenues from a tax of thirteen pence per ton levied on all coal landed. On the left, or upper side of the

THE BEAUTIFUL QUEEN ANNE.

bridge, notice the famous Fishmongers' Hall, belonging to one of the richest London corporations. Cross the bridge, and continue to the Elephant and Castle, *via* Wellington and High Streets, passing Barclay and Perkins's famous brewery, Queen's Bench, Surrey Jail, etc., *via* Great

Surrey Street, across Blackfriars Bridge, along the Thames Embankment to the new houses of Parliament.

Here you see not only the finest edifices in an architectural point of view, but in a military, naval, legal, and ecclesiastical point. England's great, alive and dead, are here congregated; the Horse Guards, whence the commander-in-chief of the English army issues his orders; the Admiralty; Westminster Hall, the Law Courts of England; Westminster Abbey, where England's kings and queens have been crowned, from Edward the Confessor to the present time, and where many of them lie buried. Here, in Whitehall Street, opposite the Horse Guards, is the old Banqueting-house of the palace of Whitehall, in front of which Charles I. was beheaded; through Parliament Street to Waterloo Place, to Pall Mall, the great club and social centre of London; St. James's Street, past St. James's Palace and Marlborough House to Buckingham Palace, to Hyde Park Corner, to Cumberland Gate or Marble Arch. Private carriages only can enter the Park; cabs and hackney coaches are not permitted entrance. Oxford Street to Regent Street, and down Regent (the fashionable shopping-street) to the starting-point, Charing Cross.

Next drive to the Southwestern Railway Station, and take the train for Richmond or Hampton Court, returning by the Thames in a boat to Greenwich. This will be a most interesting excursion, especially if you find a comparatively intelligent boatman to explain the different sights on the banks of the winding river."

One of the World's Wonders.

Westminster Abbey is, with the exception of the Tower of London, the most famous of all the buildings of England. The name was used to distinguish the Abbey from the Cathedral Church of St. Paul, which was formerly called the Eastminster. The site was originally occupied by a church, which it is believed was built by Sebart, King of the East Saxons. In 1055, Edward the Confessor began the erection on the site of an abbey a church in honor of the Apostle Peter. Very little now remains of the Confessor's work, with the exception of the Pyx House, which lies to the south of the present Abbey, adjoining the Chapter House, and that part of the cloister which is now used by the boys of the Westminster School as a gymnasium.

Henry III., when he came to the throne, found the old Abbey in great need of repair, and resolved to pull it down and replace it with a new and more splendid edifice. He pulled down the greater part of the Confessor's work, and erected the principal portion of the present edifice.

Henry VII. rebuilt a large part of the Abbey, and added to it the beautiful chapel which bears his name, and which stands behind the head of the cross, in the form of which the Abbey is built. Sir Christopher Wren completed parts of the towers at the western entrance, but the Abbey as a whole is very much as Henry VII. left it. It is a massive and venerable pile, the beauty and grandeur of which are beyond the power of words to describe.

THE THAMES EMBANKMENT AND BOULEVARD.

The interior is lofty, the roof resting upon massive pillars gray with age. The effect is somewhat marred by the screen which divides the choir from the rest of the church. Daily services are held in this part of the building, which is provided with pews. A dim, religious light pervades the interior, and is in harmony with the sacred character of the holy house.

Behind the present altar screen is the Chapel of Edward the Confessor, near which, in old times, devout persons used to sit in order to be cured

of certain ailments. It contains the shrine of the Confessor, before which Henry IV. was seized with his last illness, while confessing. Here also are the tombs of Richard the II. and his queen, Anne, Henry III., Henry V. and Edward III. and his queen, Phillippa, and Queen Eleanor. The chapel also contains the two chairs used in the coronation of the monarchs of Great Britain. One of these has a stone seat, known in old times in Scotland as Jacob's Pillow. It was brought from that country to England by Edward I. The other chair was made for the coronation of Mary, the wife of William III. Round the Confessor's Chapel are a number of smaller chapels, filled with tombs. Back of the tomb of Henry V. is the chapel of Henry VII., a beautiful specimen of florid Gothic architecture. The gates leading into it are of brass, and are skillfully wrought, but are now so dingy with time that they resemble iron. The Knights of the Bath are installed in this chapel. Here are the tombs of Henry VII., Edward VI., Queen Elizabeth, Mary Queen of Scots, and some others of less note.

The Poets' Corner occupies the southern portion of the arm of the cross. It is filled with the graves and memorials of those who have made the literature of England. Here lie Charles Dickens, Cumberland, the dramatist, Richard Brinsley Sheridan, Thomas Campbell, Handel, the composer, David Garrick, Samuel Johnson, Joseph Addison, Beaumont, Spenser, Nicholas Rowe, James Thomson, author of "The Seasons," John Gay and others. Tablets, statues, busts and memorials are placed here in honor of those whose mortal remains rest elsewhere in English soi included among whom are Shakespeare, Milton, Southey, Cowley, Chauce Dryden, Butler, Ben Jonson, Pryor, Drayton and others. All parts of th Abbey are filled with memorials of England's honored dead, some of which are very beautiful works of art.

Stones Crumbling with Age.

Many of the stained glass windows are very beautiful. The large west window was painted in 1735; the remainder were made during the present century. A movement is now in progress to replace all the windows with modern paintings.

At the south of the Abbey are the Cloisters, one of the most interesting portions of the venerable edifice. They are so old that the stone in many places crumbles at a touch of the hand. They contain many graves, some of which are the oldest in England. Adjoining the Cloisters is the Chapter House, an octagonal edifice, with a central pillar rising some thirty-five feet. It was built by Henry III. in 1250. In old times the Chapter House was used as a Council chamber for the abbot and the

MAJESTIC CATHEDRAL OF SAINT PAUL.—LONDON.

monks, and it is said that the monks guilty of grave offences were flogged at the central pillar. The House of Commons subsequently met here until after the days of Henry VIII., when the place became a storehouse for public records.

A Renowned Highway.

One of the most notable structures on the banks of the river is the Thames Embankment. It consists of a wall of hewn granite, protecting a massive quay reclaimed from the river. This is planted with trees, and forms a handsome promenade, 100 feet wide, extending from Westminster Bridge to Blackfriars. On the upper portion of the embankment stands the famous obelisk known as Cleopatra's Needle, presented by the Khedive of Egypt to the city of London, and recently erected upon its present site. It was one of the two obelisks that stood upon the seashore at Alexandria, Egypt. Its companion was presented to the city of New York.

A Magnificent Cathedral.

St. Paul's Cathedral is not only the most conspicuous edifice in London, but it is also the largest Protestant church in the world. It is asserted by tradition that a Christian church was erected on the site in the second century, was destroyed by the Emperor Diocletian, was rebuilt at a later period, and was desecrated by the pagan Saxons, who held their orgies within its walls. "William the Conqueror gave a charter which conferred the property in perpetuity upon the cathedral, and solemnly cursed all persons who should attempt to diminish the property." In 1083, and again in 1137, St. Paul's suffered from fire, and in the Great Fire the cathedral was totally destroyed. In 1673 Sir Christopher Wren was employed to build a new edifice, and years later the present St. Paul's was completed.

Looked at from the outside the cathedral is truly imposing. The upper portion is of a composite order of architecture; the lower one Corinthian. Built in the form of a cross, an immense dome rises on eight arches over the centre. Over the dome is a gallery, and above the gallery is the ball and the gilded cross, the top of which is 404 feet from the pavement beneath. The most attractive view of the cathedral is obtained from the west front, in Ludgate-hill, whence admission is to be gained after ascending a flight of stone steps.

The west front opens at once into the nave. Immediately on the right is a recess, not unlike the private chapels in Westminster Abbey, containing a monument to the great Duke of Wellington. A figure representing Arthur Wellesley lies under a canopy of bronze, and the names

of his many victories are sculptured below. Although there is no dearth of "storied urn and animated bust" in St. Paul's, it must be confessed that the general impression produced by the inside of the cathedral is a gloomy one. The interior is almost conspicuous in its dearth of stained glass, and the few frescoes which decorate the supporting arches of the dome only serve to illustrate the poverty of the cathedral in artistic effort. Nothing of any passing interest is to be seen in the nave, but the active visitor may ascend a winding staircase to the whispering gallery, which runs round the base of the dome. As this is perfectly circular, a whisper may be heard round the wall from one side to the other, and an intelligent attendant will explain certain experiences of his own anent this curiosity in architecture.

On a level with the whispering gallery will be found the clock and the canon's library. Above is a stone gallery, whence, if the day be clear, a fair view of London and the Thames may be obtained; but if the visitor be still more ambitious, he may ascend more winding stairs, and reach the golden gallery far away above the dome. Thence upward he may climb more steps, until he reach the ball, an expedition which may be undertaken once in youth, but hardly ever again.

Houses of Parliament.

The House of Parliament preceding the elaborate building now occupied by the Lords and Commons was a historic structure, and the scene of numerous events which have affected the whole world. One of the incidents which made it famous was the notorious "Guy Fawkes Plot." At a time when political excitement ran high on account of differences upon religious subjects, a gentleman named Robert Catesby, conceived the idea of blowing up the Parliament House on the 5th of November, 1605, the day on which the king was to open the session.

A cellar under the house of Lords was hired, and barrels of gunpowder were stored in it. The task of firing the train was confided to Guy or Guido Fawkes, a soldier of fortune, who was brought over from Spain for the purpose. The matter was kept a profound secret, and everything was gotten in readiness. At the last moment Lord Mounteagle was warned by an anonymous letter to remain away from Parliament. He showed this letter to Robert Cecil, Earl of Salisbury, and an examination of the parliament house was made on the eve of the 5th of November. The gunpowder was discovered, and Fawkes was arrested in the cellar where it was stored. The news of the discovery of the "Gunpowder Treason" spread rapidly, and the parties to the plot took flight. They were either captured or killed. All the prisoners, including Fawkes, were

executed. The whole nation joined in a thanksgiving for the discovery of the conspiracy.

Queen Victoria on Her Throne.

When the Queen opens Parliament in person, she enters the palace through the Victoria Tower. We quote the following account of a recent opening of Parliament, as an example of this ceremony:

"The peeresses and other ladies for whom places had been reserved in the House of Lords began to arrive early, and by one o'clock the House presented a spectacle with which surely no other in the world could vie. While the House was as yet comparatively thin, a few of the arrivals attracted notice, and among these were Lords Houghton, Cairns, and Lucon, the Archbishop of York, and the Bishops of St. Davids, Winchester, Gloucester, and Peterborough. The bishops mostly gathered upon the bench in front of the diplomatic body, and fourteen of the judges took their seats on the benches allotted to them. The members of the diplomatic body vied with the ladies in their contribution of gold and color to the assembly.

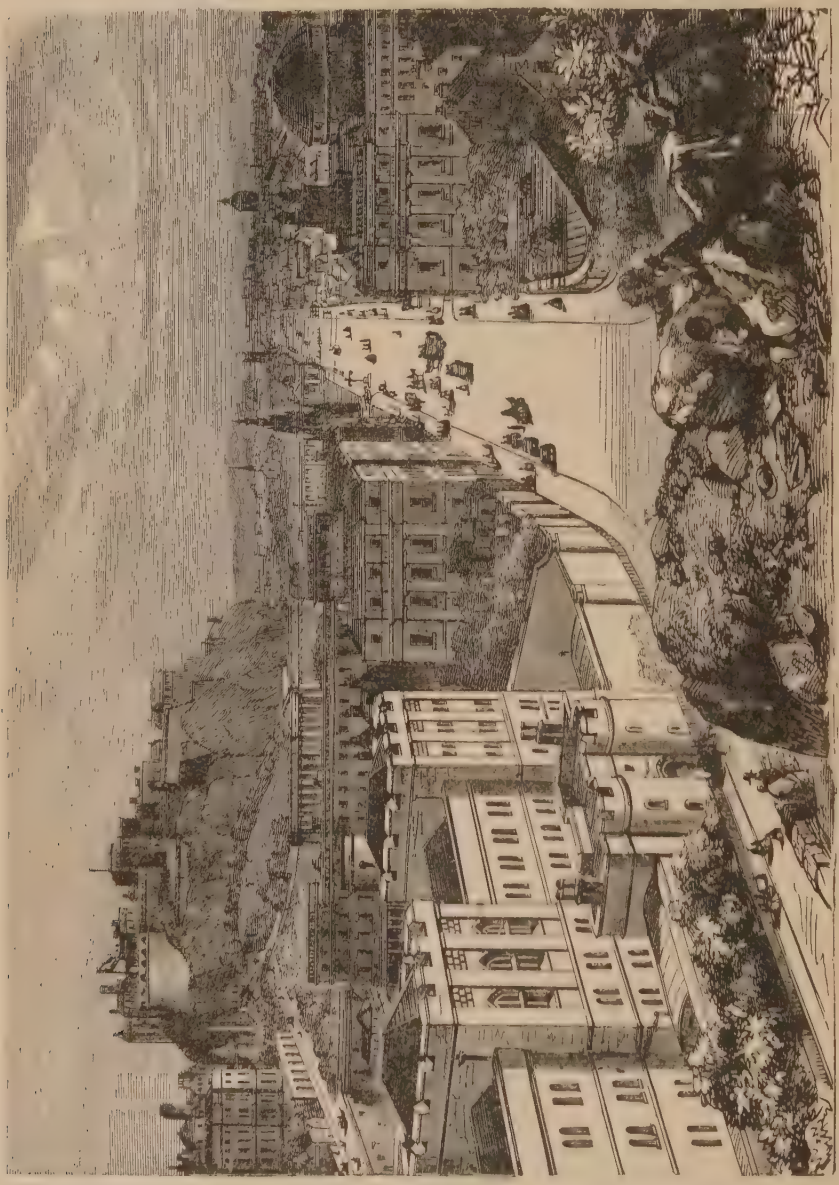
"As two o'clock approached, the Duke of Cambridge entered the House, wearing his robes over his field-marshal's uniform, and by that time rather more than a hundred peers were present. In a few moments all rose at the entrance of their royal highnesses the Princess of Teck and the Princess Christian, who took places towards the ends of the woolsack, facing the throne. The Prince and Princess of Wales were the next arrivals, and the Prince, after speaking to the princesses and some of the peers, took the chair on the right of the throne, while the Princess of Wales occupied the centre of the woolsack.

"At twelve minutes past two the door on the right of the throne was thrown open for the entrance of her majesty, who was preceded by Lord Granville carrying the sword of state, by the Marquis of Winchester with the cap of maintenance, and by Lord Bessborough with the crown. The robe of state had previously been placed on the throne, and when the Queen seated herself the Princess Louise arranged its folds around her majesty. The princesses then remained standing on the steps to the left of the throne, in front of the vacant chair of the royal consort.

Her Majesty Ready for Business.

"A messenger was then despatched to summon the House of Commons to the presence of the Queen, and a few minutes of absolute stillness and silence followed—a striking contrast to the rustle of silks and the murmur of voices that had prevailed but a short time before. Then there came a sound of quickly trampling feet, constantly increasing in

intensity, until Mr. Speaker made his appearance at the bar of the House, followed by the usual and often described rush of the more swift and



VIEW OF THE MAGNIFICENT CITY OF EDINBURGH.

active of the members. In the front rank of these was the prime minister, looking as if his rest during the vacation had been of no small service to him. As soon as the noise of the arrival had been hushed, the lord

chancellor advanced to the foot of the throne, and said that he was commanded by her majesty to read the speech, and that he would do so in her majesty's own words. At this statement there was probably some general sense of disappointment. As the chancellor proceeded, the Queen sat with eyes cast down, and almost absolutely still, a single slight movement of the fan being all that was at any time perceptible."

A Picturesque City.

Leaving the great metropolis, we will pay a visit to one of the most celebrated cities in Europe, in fact, in the whole world. The City of Edinburgh is situated on two ridges of hills, about two miles distant from the Firth of Forth. It contains a population of 200,000 inhabitants, and is a busy, thriving place. The city does not cover a very large area, but in proportion to its size is one of the most beautiful as well as one of the most magnificent of any of the European capitals. It is divided into two towns, called the Old and the New, by a deep ravine which runs through the entire length of the city. This ravine was once an unsightly morass, and both a deformity and a source of ill health to the city. It has been drained, and is now laid out in a series of beautiful flower gardens, and is crossed by a handsome bridge and a mound which join the two sections of the city.

The more elevated ridge of hills is occupied by the Castle and the old town. On the lower ridge lies the new town, and along the north margin of the valley runs a broad, splendid thoroughfare known as Princess Street. The railway lines connecting Edinburgh with the principal parts of the kingdom enter the city through the valley, and being thus placed far below the grade of the streets are prevented from being an obstruction to the traffic of the city, and are enabled to reach a central terminus in the very heart of the town. The difference between the old and the new towns is very marked in the character of the buildings, and also in the streets.

A Grand Avenue.

Princess Street is one of the most beautiful avenues in Europe. Its north side borders the gardens which now occupy the valley, and its south side contains some of the handsomest buildings in the city, including the principal hotels. Along the line of the gardens are the beautiful Scott Memorial, erected in memory of the great Sir Walter, and the statues of Professor John Wilson (Christopher North); Allan Ramsay, the sweet poet of nature; Dr. David Livingstone; and the Duke of Wellington. The Scott Memorial is a beautiful gothic structure, two hundred and sixty feet high, open at the bottom, and containing a marble

statue of Sir Walter Scott, and a number of niches occupied by statuettes representing his principal characters, and effigies of the principal Scottish poets. In Charlotte Square, in the new town, is a handsome equestrian statue of Prince Albert, the husband of Queen Victoria, and in St. Andrew's Square is a column and statue, one hundred and fifty feet high, in memory of Lord Melville, a fine shaft rising from a massive base.

RENOWNED PALACE OF HOLYROOD.

Calton Hill, in the eastern part of the city, is the site of the Royal Observatory, the Nelson Monument, the National Monument, an imitation of the Parthenon at Athens, the monuments to Robert Burns, Dugald Stewart, and Professor Playfair, and the handsome buildings of the High School. At the base of the hill is the grim castle-like Bridewell, or city

prison. The view from Calton Hill is very beautiful. It commands the whole city and the surrounding country. To the west rise up dark and stern the rugged hill crowned with the frowning old Castle, and portions of the old and new towns with the valley and the railway stretching away between them. On the south are Salisbury Crags and Arthur's Seat, with Holyrood Palace and Abbey at their feet, and in the distance the hills of Lammermoor, and, farther still, the Pentland Hills. Northward is the Firth of Forth, with Leith, the port of Edinburgh, clinging to its shore, and beyond it the dark hills of Fife and the distant outline of the Highlands. To the east is the broad, open sea stretching away to the horizon.

A Rocky Fortress.

The chief sight of Edinburgh is the Castle. It stands on the summit of a lofty and abrupt hill, and commands the city and surrounding country. Its origin is unknown, but it is certain that a fortress stood here in the time of the Picts, and the legends state that the Pictish kings kept their daughters here until the time of their marriage. The fortress as it now stands dates from the Fifteenth Century, with the exception of the little Norman chapel, which was built by the mother of David I., who died here in 1093. In old times Edinburgh Castle was regarded as impregnable, although, in 1313, Randolph, Earl of Moray, captured it from the English. Modern artillery would soon reduce it now. It is one of the fortresses which by the articles of union between England and Scotland must be kept fortified. It is rich in historical interest, and was the scene of many important events in the troubled history of Scotland. James VI. of Scotland, and afterwards James I. of England, was born here, in a little room which is shown to visitors, and the castle was the birth place and home of many of the Scottish sovereigns. Many interesting relics are preserved here, among which is the Regalia of Scotland, which was discovered in 1818 after a disappearance of 110 years.

Historic Holyrood.

Holyrood Palace is another deeply interesting place. It lies at the foot of Salisbury Crags, and was founded in 1501 by James IV. Much of the present edifice dates from the reign of Charles II. of England. Adjoining it, but distinct from it, is the Abbey of Holyrood, founded by David I., in 1128. The palace is open to visitors, and contains many objects of interest. Among these are the apartments of the ill-fated Queen Mary. Here she was married to Darnley; here Rizzio was murdered; and here the Queen was married to her third husband, the Earl of Bothwell.

Edinburgh contains many noble institutions devoted to literature, science and art, and these are of so high a character as to have won for

CARLISLE BRIDGE AND SACKVILLE STREET—DUBLIN.

the city the proud name of the "Modern Athens."

From Scotland, a short ride across the channel brings us to the "Emerald Isle." The majority of the people of Ireland are Celts, the

"Englishry" occupying a comparatively small portion of the northern and eastern sections of the island, and the inhabitants of these regions, when of Saxon stock, are all comparatively recent colonists. There is, of course, not to take into account the legends of prehistoric people, a good deal of Scandinavian blood in the portions settled by the Northmen. These ethnological features of Ireland are due to its position. The western portion, facing the Atlantic, and the southern being at a long distance from any other country, were entirely left to the aborigines. But when invaders landed from England, they, as a matter of course, seized on the eastern shore, that is to say, on the portion nearest the country from which they had set out. The same law applies to a considerable extent to the Scandinavian marauders.

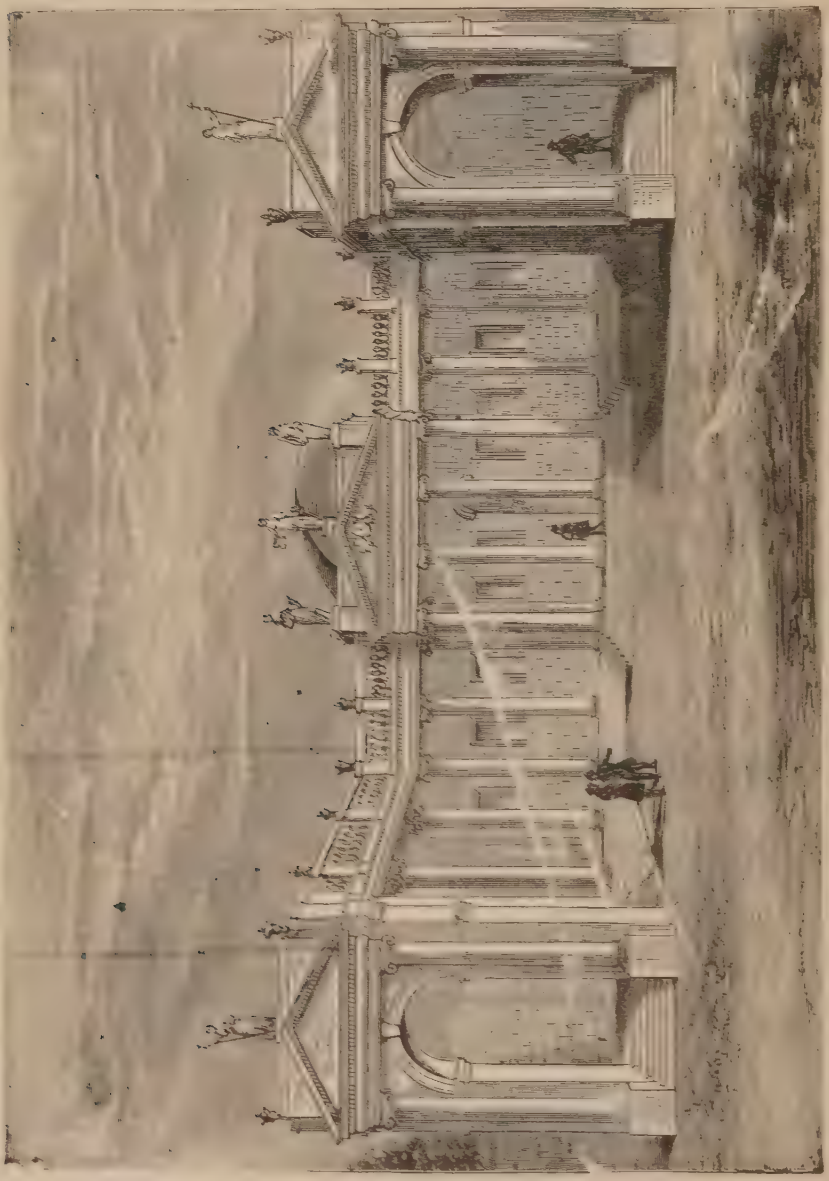
How Ireland Came to be Settled.

The settlement of the north of Ireland by Scottish colonists was due to special provisions made by different English sovereigns, in order to re-people the devastated lands of the native tribes, and in later times the sale of encumbered estates has done much to plant "foreigners" in different parts of the country. At the Reformation most of the English settlers adopted Protestantism, and the later arrivals have been nearly all of the same faith. The Celtic people, on the other hand, remained true to the Latin Church. But many places within the Irish "pale," which had been settled before the Reformation, remained staunch to the ancient creed, and now, though of Teutonic blood, the people are as much identified with the national aspirations and prejudices as are the Celts, by whom they are surrounded, the influence of the Celt upon other races being thus remarkably illustrated.

In modern times the Erse tongue is spoken, as their sole language, only by the poorest and least-educated of the population. In Connaught, Munster, the remoter parts of Ulster, the south of Leinster, and in the islands off the west coast, it is still the every-day speech of the rural classes, many of whom are entirely unacquainted with English; and so widely do the sub-dialects of Erse differ that the people of one district have often some difficulty in understanding those of a more distant section.

Professorships of the Irish language exist in several of the universities; but it is cultivated mainly as a philological study, and for the sake of the ancient literature which it embalms. As a speech it is not growing, the difficulty of any one not familiar with English making his way either in or out of Ireland acting as a serious obstacle in the way of the young people cherishing it. But the emigrants who leave for America and Australia take it with them, and now and then poems and essays (of the

ultra-patriotic order) appear in this expiring language. The second generation may still keep it alive, though it is hardly likely that out of



OLD PARLIAMENT HOUSE—DUBLIN.

the Erse districts of Ireland it will be much studied, except by scholars, since the necessity for speaking it will have ceased.

In less than 1,500 years after coming in contact with the dominant Romans and Teutons, the Celts ceased to be the ruling race in the land, and long before the close of that period they existed as their own masters only in isolated septs here and there, unless, indeed, we except the tribes of the Scottish Highlands and Islands which, though nominally subject to the Scottish kings, and afterwards to those of Great Britain, were in reality independent of either until the construction of roads enabled the English dragoons to penetrate their fastnesses. Even yet they are not quite conquered. The Irish Celt is in a condition of chronic protest against the laws under which he is forced to live, and it requires only such an agitation as that of the northern crofters in 1884-8, to show that perfect acquiescence in the rule of the Saxon is not universal in the regions which the Celt regards as his own.

The qualities of mind which the race possess are fitted for sudden dashes, but not for long-sustained efforts, such as those demanded of a line of conquerors, colonists and rulers of men. They are, as they were in the days of Tacitus, "good soldiers, but bad subjects." The restless activity which the early Irish missionaries displayed is still evinced by the modern Celt, who is foremost in every field where eager dash and mental mercurialism avail to carry the day.

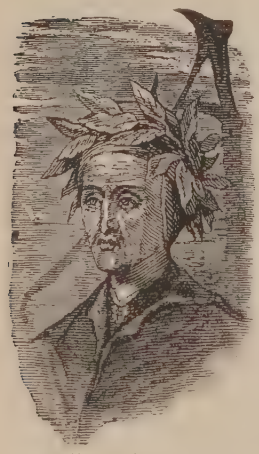
The Ireland of to-day is well worth a visit by all who can get an opportunity to make it. The scenery in many locations is lovely. The Lakes of Killarney especially are far famed for their beauty, and it is now the custom with most American tourists to land at Queenstown, go up the river to Cork, and thence move northward, taking a survey of the many objects of interest on the way.

Ireland has several fine towns. Londonderry, Belfast and Dublin are all attractive cities. One is struck in Dublin with the healthful look and fresh complexion of the inhabitants, the fine squares and spacious streets, and the evidences of wealth and refinement in a country which has the name of being poverty-stricken. The old House of Parliament still stands as a suggestive memorial of Irish independence, which did not long survive its own birth.

CHAPTER III.

SUNNY ITALY.

Land of History and Romance—Going to Italy to Abuse Italians—Peculiar Traits of the People—City of Naples—Noise and Clatter—Spendthrifts and Plunderers—Much Pleasure and Little Business—Recent Waking-up of Industries—Retailers of Drolleries—Puppet Shows—Fishermen of Naples—The Poor Helping the Poor—Beautiful Venice—The Queen City—Magnificent Town—Speculators and Gamblers—Carnivals and Gorgeous Illuminations—Renowned Old Churches—Splendid Works of Art—Story of "The Brides of Venice"—Places Associated with Celebrities—Galileo and Titian—Lovely Italian Scenery—Beautiful Lakes—Description of Four Famous Lakes—A Captivating Landscape—A Winter Climate—"Biting Frost"—Balm of Summer—Orange Groves and Semi-Tropical Fruits—Silk—Cattle—Minerals—Pasture Lands.



ALL travelers in Europe are anxious to visit Italy—the land of Cicero, Virgil and Dantè. The man who has been steeped in Roman history feels a thrill at the first view of the broken arches which tell of a vanished culture, such as he experiences at the sight of no other fragment of man's handi work, and as he examines for the first time in their own squalid homes, the swarthy, ever-graceful people in whose veins runs the blood of the most remarkable race whom the world ever knew, unless we except the Greeks, it is not easy to ask him to arrive at an unprejudiced judgment regarding them. He is in the beginning inclined to be all on the side of romance. Yet after a time he is apt to suffer so severe a reaction, that it is sometimes said foreigners go to Italy only to abuse Italians.

Hence, after canvassing the opinions of a hundred writers, each of whom professes to have arrived at his conclusions after the utmost heart-searching, one is puzzled to form any decisive view in regard to Italian character. One author is sweeping in his condemnation; another is just as dogmatic in pronouncing the nation a much injured one. Perhaps the wise man may find it prudent to accept neither extreme. The truth is that though the modern Italians have many characteristics in common, and are in physical appearance evidently more or less alike, their varied origin and the numerous more or less complete transformations which certain cities

or sections of the country have undergone, must have greatly altered their original nature, and given particular places peculiar traits.

Nor must it be forgotten that the modern kingdom of Italy with its uniform laws and institutions, is a very recent institution. Italy had previously, for hundreds of years, been broken up into numerous little States, and at a still earlier date each city had a more complete autonomy and political life than was the rule in the other parts of Europe. All of these facts have impressed on the Italian nation certain marked features. Naples, for instance, is very different from Rome, and the Neapolitans are in their character and disposition as widely apart from the Romans as are the towns which they inhabit. It is considered sometimes hard to believe that the inhabitants of these two cities are the same people. The progress of railways and the unification of the laws of the country have done much to tone all Italy down to the same uniform level.

A City Always Bent on Pleasure.

But even yet when one sees the quiet, almost gloom, of the older streets of the purely native districts of Rome, and the eternal chatter, noise and revelry of the city by the Bay of Naples, the visitor feels that the mere fact of the one place having for years been governed by priests, while the other was the "sink of Christendom," the haunt of pleasure to which the spendthrifts and plunderers of Europe hied with their hard-earned or ill-gotten gains, could not alone make the great difference which is patent to the least observant. Naples seems to be enjoying a continual carnival. The people as Mr. Justice Whiteside remarked many years ago —and the verdict is still as sound as ever—seem never to appear in their real characters; the business of life is turned into a masquerade. The delightful climate in which they live may have had much influence on the habits of the Neapolitans, their want of education and of industry more.

Naples is a thickly populated town. But to a stranger it seems more crowded than it really is, for as soon as the sun rises, the whole mass of the inhabitants, men, women and children, rush with one consent into the streets, and continue there, shouting, grinning, dancing, or following their trades or occupations, till night drives them indoors. All the while little real business is done. For its size Naples has less trade than any similar city in the world. The people supply the want of business by never-ending noise and clamor.

Italy Waking to a New Life.

The New Italy of the last decade, is, however, a very different country from the drowsy land which for ages and ages old Italy was, under its tyrants and listless *dilettanti*. The whirl of spindles and the clang of

CITY AND BAY OF NAPLES AND MOUNT VESUVIUS.

BRIDGE OF SIGH , SHOWING THE PALACE AND PRISON.

hammers are heard all over the realm. Sleepy cities are awakening to renewed life, and plains unploughed since the time of the Etruscans are once more being drained, and bloom with crops. And on the whole the revivers of what was at one time regarded as an effete people, though they have a long and an uphill task before them, have a fine material on which to work. Ages of oppression, centuries of grinding despotism, have implanted in the Italian mind those traits of duplicity, which, like lying, are the natural protection of the weak. An Italian is notoriously slippery, and bears the reputation of being the readiest to deceive when he appears the most friendly.

PEASANT WOMAN OF NAPLES.

Naples is emphatically the place where no man works, where the suffering of the poor inspires no sympathy, and the pleasures of the rich deserve no respect. The lazzaroni are not necessarily beggars. They are simply the mob, and may be fishermen, porters, messengers, and mendicants. Physically they are a fine race, and, as Mr. Whiteside remarks, seem always as if preparing to go to bed while pursuing their occupations in linen drawers and a night-cap, for they disdain shoes or stockings. Their gait is an amble between a walk and a run, and they are equally ready for playing or for fighting. Punch is a very important personage in Naples; he dresses up and retails the drolleries of the day; he is the channel of the passing opinions, and could gain a mob or keep the whole kingdom in good humor.

The fishermen who drag their nets at the end of the Villa Nazionale will suddenly drop their rather profitless business (the fishes are small and scanty), seat themselves on the beach and play with dirty cards, their gravity during the sport being more ludicrous than their merriment. Then a puppet-player comes with his pulcinella, and every one deserts the cards for the show, and suddenly—it used at all events to be the case when Naples was under the priests and the Bourbons—there will appear a monk with his crucifix, and, as Andersen so picturesquely describes the scene, all the crowd will drop on their knees, and even the puppet-player will cease his pantomime as the sacred sounds fall upon his ear.

We have spoken of the Neapolitan fishermen. Those picturesque people who have been painted so many thousand times by the artists of every nation are especially lazzaroni. Thus they are poor people, for though the occupation is far from profitable, the majority of the humble orders of Naples prefer it to any other. The work is easy when it is divided among a greater number of people. That is something. Then there is an irregularity in the toil, which, to the shiftless Neapolitan, is an irresistible attraction, for all continuous labor is irksome beyond measure, and if the gains be small, little suffices for the wants of existence in a climate where the mere feeling of life is enjoyment. At best the fisherman can earn only a few pence a day, and as he is paid, not according to the length of his toil, but by the amount of profit he derives from his catch, the chances are that some days he earns nothing, and expects nothing from his employer.

VENDER OF ICE WATER—NAPLES.

The fisherman is a rogue—he never denies it, and in the loose code of Neapolitan morals, the term is not offensive; but he is amiable, and, in his way, charitable. It is nothing uncommon to see him and fifteen more drying a net when half of the number would have amply sufficed. However, the others would have been in that case unemployed and so their comrades cheerfully share with them the scanty gains of their united labor. In common with the humbler classes of Italians the fishermen are generally unambitious, dirty, and dishonest, for all of which faults the ready excuse is the wretched pittance which they earn by their precarious calling. Happily, however, they are not fastidious regarding their food: they eat the fishes they are unable to sell and some of the smaller species, and particularly a kind of transparent crab, they devour alive with the utmost nonchalance.

When Attila, "the Scourge of God," invaded Northern Italy, A. D. 452, leaving his track in ruined towns and desolated villages, a body of Italians, natives of Venetia, a district of Lombardy, fled before him to the islands of their lagoons in company with some citizens of Padua. Attila succeeded in destroying many cities, but quite involuntarily he was the means of creating the fairest one that the world had ever seen. The

islands to which these fugitives fled were formed at the head of the Adriatic by means of mud and sand sent down by the rivers flowing from the Apennines and the Alps. On these islands—namely, Malamocco and Palestrina—the fugitive Veneti settled in peace and security, occupying themselves with their fisheries and salt works. By-and-by, however, as population increased, the people spread themselves over other islands, increased the means of subsistence, built substantial dwellings instead of the mean huts they at first erected, threw bridges across from island to island, and thus grew Venice, the "Queen of the Adriatic."

FAR-FAMED BEAUTIES OF VENICE.

The Bridge of Sighs—immortalized by Byron, and which Howells designates as "that pathetic swindle"—is best seen from the Ponte della Paglia. The bridge is not in itself ghastly or dreary, and derives its name from the fact that criminals were brought from the prison across this bridge in order to hear their sentences and meet their doom. The arrangements of the prison were spoken of approvingly by John Howard the philanthropist, who inspected it in the course of his visits to the prisons of Europe.

There is no more magnificent square in Europe or in the world than the Piazza San Marco. It is magnificent in itself; it is grand in its

CITY OF MILAN WITH ITS RENOWNED CATHEDRAL.

historical associations, as almost every event in the history of the Republic was notified or celebrated here; and it is crowded with objects of present interest. In the great open space hundreds of pigeons assemble to be fed at two o'clock at the expense of the State, in grateful remembrance of services their ancestors rendered to Admiral Dandolo in conveying important messages when he was besieging Candia in the thirteenth century. In the afternoon or evening, according to the season of the year, a band plays in the Piazza, and all Venice turns out to promenade. Here, too, on Sundays the Tombola, or Lottery is held—an amusement or business which has a strange fascination for the people. A writer, speaking of the Tombola as it was not many years ago, says:—"The very mendicants speculated, and a kind of superstition existed which gave rise to an incessant, unwearying, elaborate, often fraudulent study on the finding or revealing of lucky numbers. They were dreamed of by night; the Virgin was supplicated to point them out; the cradles of infants were watched for signs; the coffins of the dead were opened in search of some mysterious indication; and when any of the ticket-holders died, lively were the rejoicings in this camp of Mammon. Their ages, and days, and hours of birth were eagerly inquired and adopted as promises of luck." Here, too, the Carnival of Venice—once so celebrated, but now rapidly degenerating—is held, and certainly no place in Italy—not even the Via di Po in Turin, admirable as that is—can vie with the Piazza in means for gorgeous illuminations and decorations.

Famous Old Churches of Venice.

One of the greatest curiosities of Venice is the Church of the Jesuits, with walls, columns, floor, ceiling, altars, and pulpit made entirely of Carrara marble ingrained with verd antique—a most costly work, but the effect is only to deceive people into the idea that it is all of common tapestry. The Gli Scalzi is also entirely of marble of the rarest and most lovely kinds, and is in such good taste and so marvelous in its effects, that the Venetians are prouder of it than of any other church, except St. Mark's. The Church of St. Pietro di Castello was, until the year, 1807, the Cathedral Church of Venice; it contains an old marble throne, said to have been the chair of St. Peter at Antioch, and is the scene of the legend of the "Brides of Venice."

It was an ancient usage among the Venetians for twelve poor virgins, endowed by the State, to be united to their lovers on St. Mary's Eve, in the Church of St. Peter, at Olivolo. On this auspicious day the parents, friends, and kinsfolk of the betrothed used to assemble on that island, and from an early hour barges, gaily decorated with flowers and streamers,

might be seen gliding along the canals bearing the happy couple their dowers and marriage presents. On one of these occasions, in the tenth

PALACE FERRO, GRAND CANAL AND GONDOLA—VENICE.

century, some daring corsairs of Trieste pounced upon the maidens as they stood at the altar, and bore them and their dowers away. The Doge

or chief magistrate, summoned the people to arms, and a body of trunk-makers in the parish of Sta. Maria Formosa rushed to the rescue, overtook the delinquents, and, after releasing the maidens, inflicted a terrible retribution on the pirates. The brides came back to Olivolo with their treasure, and from that time forth for centuries an annual procession of young virgins, attended by the Doge and clergy, paid a visit of ceremony to the parish of Sta. Maria Formosa, where they received a hospitable welcome from the trunkmakers.

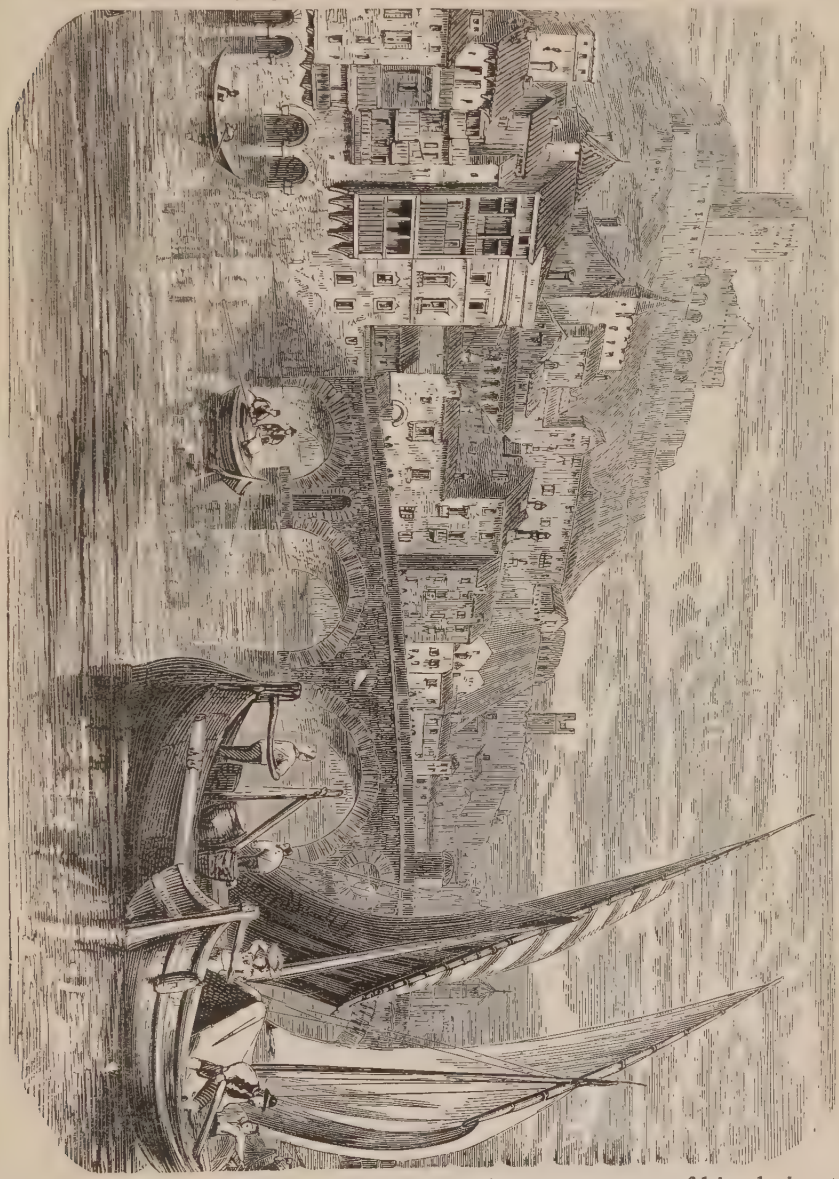
Elegant Mosaic Work.

It would be pleasant to linger awhile in some of the mosaic manufactories, and watch the modern processes in an art for which Venice has so long been famous. Mosaic work was brought to the Italians by the Byzantines, and the oldest pictures in Venice are in mosaic. Venice has also always been celebrated for her glass pearls, beads and other glass wares, made at one time in the city, but subsequently in the island of Murano, where the glass furnaces were removed from the neighborhood of the Rialto on account of the numerous conflagrations they caused. Pleasant too it would be to visit the islands: Torcello, with its curious relics; San Lazzaro, with its Armenian convent; the Lido, with its magnificent views of Venice on the one hand, and the mountains of Fruili, the Tyrol and the Alps on the other.

But we can only take up the kaleidoscope and turn it once again to catch a few of the changing hues and colors of Venetian life and story. And what do we see? We see Torquato Tasso, the immortal author of "Jerusalem Delivered," writing his stanzas, and delighting to hear them sung by the gondoliers. We see Galileo in 1609 scanning the heavens with his newly-invented telescope, and then presenting it to the Doge Donato. We see Petrarch in his palace on the Grand Canal, appropriated to him by the State, receiving a visit from Boccaccio. We watch young Marco Polo conning over the rough map spread before him on a table, or playing at ships with his companions on the canals, or when all his voyages are over, receiving the homage of the Venitians on his return, and settling down as a member of the Grand Council. We gaze upon Ignatius Loyola again and again, passing through the narrow streets of Venice, sometimes begging his bread, and always sowing the seeds of the new doctrines which culminated in the establishment of the Order of Jesus.

We enter at the house of Titian, whom kings and emperors delighted to honor, and see him surrounded with a gay and witty throng at one of his famous garden parties, and hear the sarcasm of Sansovino and the

wild laughter of Aretino, the profligate poet; or we look in later on, while the plague is raging, and the old man in the agony of death sees



FAMOUS CITY OF VERONA.

his house robbed by ruffians, who are carrying away some of his choicest pictures as the eyes of the painter film in death. We see the first book printed in Italy issuing from the press at Venice, and note the excitement

among the Venetians as they hold in their hands the "Gazette," the first newspaper ever published; or watch the excitement on the Rialto when the first bill of exchange was issued, and the first bank of deposit opened.

ITALIAN PEASANT GIRL.

We hear Malibran, Pasta, Catalini, Grisi, Rubini, singing in the Venice Opera House; we see Byron meeting Teresa, Countess Guiccioli, for the first time at the palace of Madame Albrizzi; we see Josephine ruling as Queen of Venetian society; we mark old Doge Manin fall senseless as

he is about to take the oath of allegiance to Austria; and we hear the ringing shouts of gladness as the Venetians welcome Victor Emanuel, King of Italy.

The Swiss Italian Lakes.

Not all the beauties of Italy are confined to the towns. Italian scenery is celebrated the world over for its picturesque beauty. Of the four principal lakes—Como, Lugano, Maggiore, and Orta—Orta is the smallest and the most beautiful. Each lake, however, has its peculiar and distinctive charm, and so much depends upon atmospheric effects, upon the passing shades of feeling in the tourist's mind, and innumerable other circumstances which make up the sum-total of enjoyment, that it is difficult to express a preference which may be reversed at the next visit.

I saw the Orta for the first time, says a recent traveler, under exceptionally favorable circumstances. We left Omegna late in the afternoon, and when about half way across the lake the sun went down in such a blaze of glory as I have never seen before or since. The whole atmosphere seemed flooded, saturated with golden light. The mountains which inclose the lake passed through all shades of color from blue to deep rich purple. It was a fête day at some village on the banks, and the songs of revelers came faintly borne on the breeze, or, mingled with merry laughter, rang out from the boats on the lake. We told our rowers to slacken their speed, and lying back on the cushioned seats, listened to those sweet sounds, gazed on those lovely scenes, and were lulled by the rhythmic beat and tinkling dip of the oars as they softly rose and fell.

Then came the night—and such a night! The sky was crystalline in its clearness, and thick-sown with stars. The Milky-way was lustrous with light. The crescent moon was mirrored in the blue waters of the lake with wonderful vividness.

"The moon is up, and yet it is not night;
Sunset divides the sky with her—a sea
Of glory streams along the Alpine height
Of blue Friuli's mountains; heaven is free
From clouds, but of all colors seems to be
Melted to one vast Iris of the West,
Where the day joins the past eternity;
While on the other hand, meek Dian's crest
Floats through the azure air—an island of the blest!

"A single star is at her side, and reigns
With her o'er half the lovely heaven; but still
Yon sunny sea heaves brightly, and remains
Rolled o'er the peak of the far Rhætian hill,

As day and night contending were, until
Nature reclaimed her order;—gently flows
The deep-dyed Brenta, where their hues instil
The odorous purple of a new-born rose,
Which streams upon her stream, and glassed within it glows,

"Filled with the face of heaven, which, from afar,
Comes down upon the waters; all its hues,
From the rich sunset to the rising star,
Their magical variety diffuse:
And now they change; a paler shadow strews
Its mantle o'er the mountains; parting day
Dies like the dolphin, which each pang imbues
With a new color as it gasps away,
The last still loveliest, till—'tis gone—and all is gray."

In nothing do judgments vary more than respecting the Borromean Islands in Maggiore. Hazlitt sneers at the Isola Bella "as a piece of confectionery hung about with wreaths of flowers," and Matthews glorifies it as "the magic creation of labor and taste—a fairy land which might serve as a model for the gardens of Calypso." De Saussure thought it "a magnificent caprice, a sublime conception, a sort of creation;" to Simond it suggested "a Perigord pie stuck round with heads of game." Most visitors will assent to the truth of Murray's criticism: "To taste it may have little pretension; but to a traveler fresh from the rigid climate of the North this singular creation of art, with its aromatic groves, its aloes and cactuses starting out of the rocks, and, above all, its glorious situation bathed by the dark-blue waters of the lake, reflecting the sparkling white villages on its banks, and the distant snows of the Alps, cannot fail to afford pleasure."

Loveliness of Italian Scenery.

Even the most cynical and censorious will admit that the views from the terraces combine everything that can be imagined as the perfection of a romantic and luxurious abode. The deep, clear, blue water laps gently round the rocks. Vistas of distant, sunny hills and valleys open out from beneath the shade of bowers of roses, through gaps in the olive and the cactus. Purple mountains and snow peaks glitter from afar through the flickering leaves and blossoms of an orange-grove. It may be a mere piece of confectionery, in execrable taste, but there is no denying that it is a lovely spot. Indeed, the wonderful Italian sky is almost equal to rendering any spot lovely. If there is no beauty of landscape around, there is always beauty in the sky above. The deep, clear blue overhead, the remarkable purity of the atmosphere, and the brilliancy of the sunlight combine to charm the tourist.

Italy, after making allowance for classical rhapsody, is a delectable country for those who can bear heat. Yet the winter climate is so cold that visitors from the North complain of what the Roman poets styled the "biting frost," and even in summer the midday sun is no criterion of the chilly damp which so often creeps over the landscape after dark. The sun is indeed more trying than the cold, and an Italian proverb declares that only "dogs and Englishmen" walk in it, "Christians"—that is, of course, themselves—preferring the shade.

PEASANT WOMAN OF BIASSA, NEAR SPEZIA.

Italy, altogether, is a treacherous land for the invalid, though its balmy atmosphere, attractive open-air sights, and pleasing associations, will never fail to draw to it visitors from every land, which has any claims to be a sharer in the glorious legacy which the mistress of the world has bequeathed to civilization. Like Spain, Italy nurtures nearly every product. On the higher mountains the ibex and the

chamois find their homes beside the glaciers; lower down snow is rarely seen, and by evening the tourist who has lunched in the Arctic regions may sup in a valley fragrant with orange groves, and other tropical and semi-tropical fruits.

The southern part of the peninsula, as well as the off-lying islands like Sicily, are almost tropical. The sky is never clouded, and the temperature rarely falls to the freezing point, except when the chilly mountain gale, or the Adriatic north-wind blows, or when the sirocco of the African deserts raises the mercury to fever heat. The sugar-cane, the banyan, and the dwarf palm flourish everywhere in the open air, while the gardens are luxuriant with olives, grape-vines, pine-apples and bananas. In such a country, were the industry of the people equal to their opportunities, riches ought to be abundant. The farmers of Tuscany and Lombardy are the principal rearers of the twelve or thirteen million pounds' weight of silk which are produced yearly. Agriculture occupies the greatest number of the people. Two-thirds of the country is under some kind of culture, and over the mountain pastures and great plains, like the Campagna, roam vast herds of neat cattle, swine, mules and the buffalo, which in the recollection of every visitor to Italy is so associated with that region. The rivers abound with fish, as does the sea laving either shore of the peninsula. The sponge and coral fisheries are noted sources of Italian wealth, and though iron, zinc and lead are worked and exported, the mineral wealth of the country is as yet little developed.

CHAPTER IV.

PICTURESQUE VIEWS IN GREECE.

Ancient Greek Empire—Physical Characteristics of the People—Fine Heads and Features—Domestic Cheerfulness and Frugality—Greek Women—Styles of Dress—Every Man Claims You for a "Brother"—Renowned Corinth—The Ancient City—Commercial Importance—Worship of Venus—Immoral Practices—Old Roman Relics—The Isthmian Games—Classic Athens—Celebrated Acropolis—Imposing Rock—Costumes of Athenians—Red Waistcoats and Calico Trousers—Handsome Men—Public Buildings—Attractive Garden—Greek House of Parliament—Passion of the Athenians for Politics—Curious Bazaar—Funeral Customs Among the Greeks.

THE Greek family comprises the Greeks and the Albanians. These races derive their origin from the ancient tribes known under the name of Pelasgians. The Ancient Greeks founded many colonies on the shores of the Mediterranean. In the fourth century before Christ, led by Alexander, they subdued part of Asia, and carried their victorious arms into Egypt. But these conquests were ephemeral. The Greek empire was in its turn subjugated by other races, of whom the principal were the Romans, the Slavonians, and the Scythians.

In the present day the Greeks compose but a scanty population. The majority of the people who inhabit the Asiatic continent have adopted even the language of the neighbors, and are merely reputed Greeks because they profess the Greek form of the Christian religion.

The ancient Greeks, civilized by intercourse with Egyptian colonists, already afforded an example of advanced culture, at a time when the other European and Asiatic nations were still immersed in barbarism.

In spite of the misfortunes of a social decay destined to terminate in many centuries of subjection, the Greeks have preserved up to our own day the physical characteristics of their ancestors. Everyone knows that the most beautiful development of the brow, the finest shape of the human head, is what we find traced in the sculpture of ancient Greece. It had been supposed that the magnificent heads with the noble outlines, admired in the statues of the Greeks, were not the exact reproduction of nature, and that some features had been exaggerated in the direction of ideal beauty. But in our own day, the skulls of ancient Greeks have

been found whose proportions and whose general outlines demonstrate that among the artists of ancient Greece, sculpture did not surpass nature, but restricted its inspiration to types who actually lived.

Frugal Livers.

The Greek disposition is naturally cheerful, and a people so fond of amusement are not apt to fall into melancholy. Hence suicide is very rare in Greece. Add to this the fact that both in eating and drinking they are very moderate, and we are enabled to get some inkling of what the modern Greeks are. Nearly every portion of the country which they inhabit provides more or less wine; yet few of them drink much. The country is capable of raising crops of every description, and food is far from dear. But the amount of meat which a laborer eats at his one meal a day would be regarded in any other part of Europe as an approach to starvation. Even well-to-do people seldom take more than two spare meals in the twenty-four hours, and often a peasant owning his farm may be seen dining with much content on a little maize or other vegetables steeped in oil.

No country is comparable with Greece, and naturally in their own esteem the Greeks are more than comparable with any other people. In their relations democracy of the fullest kind prevails. Every common mule-boy is a gentleman, and fully your equal, sitting in the room at meals, and joining in the conversation at dinner. Every one, high or low, is his "brother," and to the traveler accustomed for a social inferior to keep in his "proper station," it is at first a little irritating to be addressed as "brother" by a stranger, perhaps not very honest, but unquestionably very dirty. To these traits in their character—to their egotism and love of ostentation—may be due the circumstance that the Greek, though temperate in his dietary, is a much more expensive person as regards his clothing and household goods than either the Turk or the Bulgarian. No Greek who can afford a coat of fine cloth, with stockings and shoes, would submit to wear coarse clothing, and if he can at all compass them, will make a point of having tables, table linen, knives and forks. Nor, except in the humbler establishments, does the bedding consist solely of rags, as among the Bulgarians; and their houses, if often lacking much in the way of cleanliness and comfort, are usually better built and more pretentious than those of their neighbors.

Superiority of Greek Women.

The women do not so frequently work in the fields. In appearance they are pretty, and in their dress careful, and even elegant. In Greece, females are fewer in number than the males, and there accordingly the

spouse, though subservient and docile enough, is in the habit of holding herself higher than in those countries where she is little better than bought. They are also said to be good wives and mothers, and as the Greek is in the habit of leaving his home for long periods at a time, the helpmate has to manage his affairs during his absence. In the cities, the wealthy Greeks live very much like any other Europeans, and have few customs peculiar to themselves. They readily imbibe modern ideas and modern refinement, and wherever they are found are celebrated for their hospitality and pleasant ways.

A Remarkable City.

Famous among the old Grecian cities was Corinth, and still famous are her ruins.

The city of Corinth is alike remarkable for its distinctive geographical position, its eminence in Greek and Roman history, and its close connection with the early spread of Christianity. But, besides this, the site of Corinth is distinguished by a conspicuous physical feature, namely, a vast citadel of rock, which rises abruptly to the height of 2000 feet above the level of the sea, and the summit of which is so extensive that it once contained a whole town. The situation of Corinth, and the possession of those eastern and western harbors, are the secrets of her history. The earliest passage in her progress to eminence was probably Phœnician. But at the most remote period of which we have any sure record we find the Greeks established here in a position of wealth and military strength.

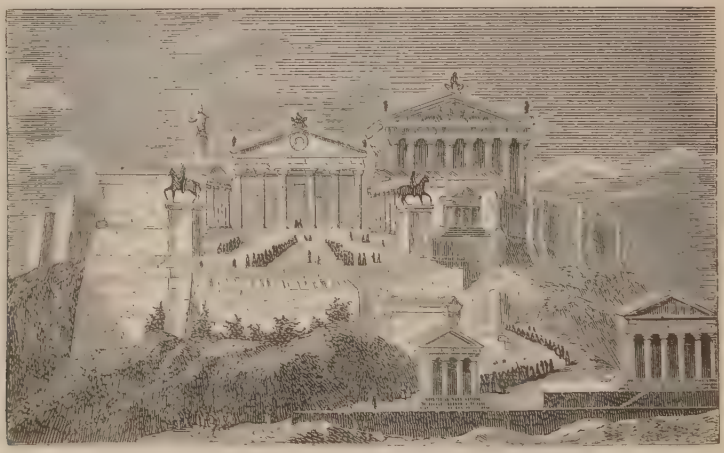
Corinth was a place of great mental activity, as well as of commercial and manufacturing enterprise. Its wealth was so celebrated as to be proverbial; so were the vice and profligacy of its inhabitants. The worship of Venus was here attended with a shameful licentiousness. The city has now shrunk to a wretched village, on the old site, and bearing the old name.

Pausanius, in describing the antiquities of Corinth as they existed in his day, distinguishes clearly between those which belonged to the old Greek city, and those which were of Roman origin. Two relics of Roman work are still to be seen, one a heap of brick-work which may have been part of the baths erected by Hadrian, the other the remains of an amphitheatre with subterranean arrangements for gladiators. Far more interesting are the ruins of the ancient Greek temple, the oldest of which any remains are left in Greece.

This description would be incomplete without some notice of the Posidonium, or sanctuary of Neptune, the scene of the Isthmian games.

This sanctuary was a short distance to the northeast of Corinth, at the narrowest part of the Isthmus, near the harbor of the Saronic Gulf. The exact site of the temple is doubtful; but to the south are the remains of the stadium, where the foot races were run; to the east are those of the theatre, which was probably the scene of the pugilistic contests; and abundant on the shore are the small green pine-trees which gave the fading wreath to the victors in the games.

Athens is situated four or five miles from the sea. Her plain is shut in on every side by mountains except on the south, where it is open to the coast, laved by the waters of Saronic Gulf, in which were the harbors of Athens. In the plain rises abruptly the square, craggy rock of the Acropolis, with its broad, flat summit. About a mile southward is Mount



THE ACROPOLIS AT ATHENS, AS IT WAS.

Lycabettus, with its conical peak, now called the Hill of St. George. This is the most striking natural feature of the neighborhood of Athens. It is to Athens what Vesuvius is to Naples, or Arthur's Seat to Edinburgh There are three other hills of moderate elevation to the south-west of Lycabettus, which are known as the Areopagus, the Pnyx, and the Museum. Milton has, with the utmost accuracy, described Athens in the passage commencing—

> "On the Ægean Sea a city stands,
> Built nobly, pure the air and light the soil."

The purity and freshness of the Athenian atmosphere have been celebrated with every epithet of praise. Travelers speak of the transparent clearness and brilliant coloring of the sky. Bishop Wordsworth thus speaks of the soil: "The buildings of the city possessed a property pro-

duced immediately by the Athenian soil. Athens stands on a bed of hard limestone rock, in most places thinly covered by a meagre surface of soil. From this surface the rock itself frequently projects, and almost always is visible. Athenian ingenuity suggested, and Athenian dexterity has realized, the adaptation of such a soil to architectural purposes. Of this there remains the fullest evidence. In the rocky soil itself walls have been hewn, pavements levelled, steps and seats chiseled, cisterns excavated, and niches scooped; almost every object that in a simple state of society would be necessary, either for public or private fabrics, was thus, as it were, quarried in the soil of the city itself."

A Famous Old Rock.

The Acropolis was the citadel which was erected on the highest point in the city. In the earliest period the city of Athens was doubtless confined to this rock of the Acropolis, and gradually the Athenians extended themselves over the neighboring hills and the plain. From its isolated position, and from the thinness of the soil, which offered no powerful inducement to immigrating races, the inhabitants were allowed to hold their lands undisturbed. The Athenians have, consequently, little that approaches to that stirring cycle of legend associated with the Dorian race of the Peloponnesus. They boasted of themselves that they were Autochthones, that is, children of the soil, and this was always their favorite title. It is said that the original city on the Acropolis was built by Cecrops, and called Cecropia, and the people were called Cecropidæ.

The Pelasgians fortified the whole of their craggy rock, and a portion of the walls was afterwards called the Pelasgium; and more especially a space of ground under the north side was so called, and was left uninhabited. Cecrops is said to have divided Attica into twelve cities, each of which had its own magistrate and its own town-hall, called the Prytaneum; these cities acknowledged the supremacy of Athens, but acted with perfect independence, and even made war upon each other.

Among the successors of Cecrops the name of Erectheus I., or Erichthonius, has been preserved. He is said to have dedicated a temple to Athene on the Acropolis, and from the prominence which he gave to the worship of Athene, the people were henceforth called Athenians. In this temple he set up the image of the goddess, made of olive wood, which was considered the most sacred object in Athens. He was buried in the temple which was afterwards known as the Erectheum.

It was after the time of Erectheus that the old city spread from the mount of the Acropolis over the wide and pleasant vale or low peninsula, formed by the junction of the Cephesus and Ilissus. In the course of

time Athens became populous and surpassingly elegant in its architecture, whilst its citizens contrived to take the lead in all the communities around.

One of their most singular domestic institutions was the Areopagus, a court which, besides its other duties, exercised a censorship over public morals, and was empowered to punish profligacy, impiety, and even idleness. To this court every citizen was bound to make an annual statement of his income, and the sources from which it was derived. The court was long regarded with very great respect, and the right was

RUINS OF THE ACROPOLIS—ATHENS.

accorded to it of not only revising the sentences pronounced by the other criminal tribunals, but even of annulling the judicial decrees of the general assembly of the people. The Areopagus was at length abolished, but the republican form of government was maintained as long as Athens retained her independence. After this period the city passed through the usual career of the ancient empires, and after a long period of prosperity and luxury, which enervated the morale and stamina of her people, became the prey, first of intestine divisions, and then of foreign conquest.

Where else in the world is there so much "to see" in the same area, or so much to "feel," as in Athens? The very "dust you tread once

breathed," and every tree and valley and stream, every road and street, every mound and grotto, every broken column and ruined shaft, has a story or a memory associated with the most glorious period in the history of the ancient world.

One of the great attractions of a stroll through modern Athens is to note the variety of costumes. The most curious and most striking is the Albanian, which the Greeks have adopted as their national dress. It consists of a blue or black jacket, cut away, with open sleeves, and rich embroidery; a red waistcoat, and a white embroidered shirt. The

RUINS OF THE TEMPLE OF VICTORY—ATHENS.

breeches are of blue, close-fitting; stockings of white or blue; red gaiters, and red leather shoes without heels, pointed, upturned, and long. Round the waist is a leathern girdle from which protrudes an alarming display of pistols and knives such as are affected by the Bedawin; the head is covered with a high fez, or pointed red flannel cap, terminating with a long silk tassel, which sways about as the wearer walks.

The principal part of the dress is the white "fustanella," a kilted skirt of linen, starched, and worn over the breeches. Sometimes as many as sixty yards of white linen are used in a "fustanella," and the effect is

rather that of a burlesque on a ballet dancer's costume. It is a curious sight for foreigners to see a Highland regiment march out, but it is a far more curious sight to see the Greek national corps parade in this feminine, but picturesque and extravagant, costume.

The Greek artisan wears a costume not unlike the Turkish, consisting of a short dark jacket, red waistcoat, very wide calico trousers, worn short, and generally blue; bare legs, and buckled shoes. This is also the dress of the Cretans, with the exception that instead of wearing shoes, they have high boots, which hide the bare legs and give a better appearance. Sometimes ladies may be seen wearing the national red cap, or the Thessalian head-dress—a tiara of gold and a veil thrown back—but as a rule they dress in Parisian style. The peasant women almost invariably wear the Albanian costume, and very striking it is, consisting of a long embroidered petticoat, and a white woolen dress over it, while on their heads and necks are chains of coins.

It is to be regretted that the picturesque dresses of Greek women are not set off by pretty faces; but you may stay a month in Athens without ever seeing a face to remind you of the beauty for which they were once famous. The men, curiously enough, are singularly handsome.

Fine Buildings and Public Gardens.

Without attempting to describe the order in which the public buildings of modern Athens may be best seen, it will interest the reader to know something about the buildings themselves.

The Palace is a large quadrangular building, 300 feet long by 280 broad, and is not a thing of beauty. It was designed by Gaertner, built in 1834–8, and the front is of white Pentelic marble. But it is large and plain; imposing and unattractive. It is, however, very pleasantly situated. Immediately in front is a large garden, and beyond is Palace Square, a fine open space with a pavilion in the centre, while at the back of the Palace is a charming garden laid out by Queen Amalia, on a piece of ground that was utterly barren.

In one part of the garden there are fine palm-trees, and near to them a rock, from which there is a view to the Olympieum and the sea. Shady groves, a tasteful pond, a large Roman mosaic, and a small museum of relics are among the attractions; but to the majority of visitors—who are admitted to the garden in the afternoon—the chief attraction is the shady walks, Athens being almost destitute of trees.

The Greek House of Parliament is not in itself much, but it is interesting as the theatre of many stormy scenes in recent times. The Greeks are hot politicians, and fiery debaters. They talk over matters of non-

vital importance with a marvelous enthusiasm, fervor, and violence of gesture, so that if the Parliament is in session, transacting business which calls for no wild excitement, and the visitor chances to be in the House for the first time when a subject is under discussion relating to some very trivial matter, he would be under the impression, from the vehemence of the speakers and the excited interruptions of the audience, that the destiny of the kingdom was on the turn of the scale. When a great question is pending in the House, every café in the town is a reflex of it. Groups of men, in passionate tones, and with energy of action, such as the boulevards of Paris rarely witness, talk over the politics of the day, while a crowd of eager listeners applaud or interrupt. One of our American writers says, in relation to the passion of the Athenians for politics: "With a territory but three-fifths as great as that of New York, with a population only about twice as great as that of Philadelphia, namely, two millions, with universal suffrage, and with a monarchy so limited that the government is in reality a democracy in the administration of its in-

GREEK WOMAN OF ARCADIA.

ternal affairs, the Greek nation of to-day devotes ten times too much energy to governing itself. This concentration of force within narrow limits begets heat at Athens. Under such pressure the political friction is something enormous. Athens supports from thirty to forty newspapers. Political clubs are more numerous than in classic days, and as influential. Every man of prominence has his newspaper, his club of personal followers, his petty party."

Among the things which arrest attention in a walk through Athens, may be mentioned the Bazaar, which presents a scene as animated and curious as in many Oriental towns. The bustle is unceasing, and the mingling of many colors in costumes; the rapid talking of hundreds of nervous, energetic, and apparently excited people; the strange wares offered for sale, and the appearance of the tradesmen and artisans who sit cross-legged in open booths on either side of the street, present a scene which may be studied to advantage by artists. The city does not produce much, and, as a matter of fact, Greece has no manufactories; nor, if it had, would great benefit accrue, until a better system of inter-communication were invented.

Magnificent Funeral Processions.

Public funerals of patriots and political leaders are celebrated in Athens with great splendor, and the bands of music, chanting boys and priests, sacred banners, and the gold-embroidered robes of white, purple, and scarlet of the dignitaries of the Church, produce a fine effect. It is the custom, at all funerals in Athens, to carry the body through the streets on an open bier, and generally with the clothes ordinarily worn when alive. It is a startling sight to come upon a procession when the body of some young lady, dressed in pale blue or other colored garment, her head garlanded with flowers, her bare arms, perhaps, crossed peacefully upon her bosom, is borne on the shoulders of stalwart young men, through the busy streets where all the exuberance of life and activity is

layed.

There are many poor people in Athens, although fewer beggars than are to be met with in many other cities where they would be less expected; and one is struck with the exceptional number of men—especially on the outskirts of the city—who seem to have nothing whatever to do. In the poor quarters of the city the stone hovels of the people present a very woe-begone appearance, and are as dirty as any to be found in Egypt. A curious custom, or law, prevails among the people. "Their huts," says a recent writer, "are constantly encroaching upon the vacant land on the slopes of the rocky citadel. The land is the prop-

GREEK FUNERAL PROCESSION.

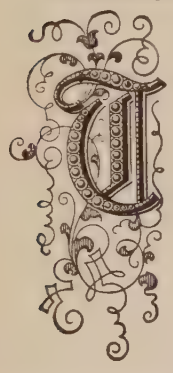
erty of the Government, and no one has a right to build upon it. But there is at Athens, either a law or a prescriptive right, which prevents the removal or destruction of a house once built and occupied. Taking advantage of this, a couple newly married notify their friends, material is quickly got together, and on the appointed night, as silently as may be, the simple house is erected between the dark and dawn, the hands of scores of friends making light work; and, with such household goods as they can boast, the young householders take possession at once. Then, from the sacred home altar, they safely answer the questions of the officers of the law, should any notice be taken of the trespass.

"As you gaze down upon these simple homes from the Acropolis, in the earliest dawn of a summer morning, and see the inmates, roused from a night's rest (often passed beneath the open sky, on the flat roof, or beside the humble door,) light a little fire in the open air and prepare their frugal meal—as you see how pathetically those little houses seem to cling like suppliants about the knees of the marble-crowned, world-famous Rock of Athens, it takes little fancy to imagine that these homes of the poor have crept for protection beneath the mighty shadow of the stronghold of liberty in Athens' glorious past."

CHAPTER V.

TRAVELS IN SPAIN.

Origin of the Spanish Race—Mountains of Spain—Variety of Precious Metals—Climate—Fondness for Show—Carrying Arms—Personal Pride and Courage—A Famous Palace—Philip II. and his Passion for Building—Burial Place for Kings—A Majestic Structure—Beautiful Chapel—Curious Stories about Relics—French Spoliation—Madrid—Places of Amusement—The Spaniard's Fondness for Tragedy and Blood—The Madrid Bull-ring—Vast Assemblages to see a Bull-fight—A Shocking Spectacle—Torturing the Beast—The Final Spear-Thrust—Sights in the Streets of Madrid—Lazy Smokers—Water and Cake Vender—Rock of Gibraltar—Impregnable Fortress—Key to the Mediterranean—Steep Sides and Strong Defenses—Ancient Contests for the Stronghold—Held by the British for Nearly Two Hundred Years.



THE Spaniards result from the mixture of the Latins with the Celts, whom they succeeded in Spain, and with the Teutons, who drove out the Romans. Washed on three sides by the sea, divided from France on the north by the Pyrenees, and from Africa on the south by a narrow stretch, of sea, Spain is crossed by ranges of mountains, which, by their various intersections, form valleys permitting only difficult communication with each other. The mountains of Spain are one of the principal causes of the richness of this country. They contain a variety of precious metals, and the streamlets which flow from their summits fertilize the valleys and develop into large rivers.

The climate of Spain indicates the vicinity of Africa. The air during winter is cold, dry, and sharp; during the summer it is scorching. The leaves of the trees are stiff and shining, the branches knotty and contorted, the bark dry and rugged. The fruits mingle with their perfume a sharp and acid flavor; the animals are lean and wild. Nature, therefore, in Spain, is somewhat violent and rude, and this characteristic is peculiar to the people of the country.

The Spaniard, like the African, is in general of moderate height. His skin is brown, and his limbs are muscular, compact, and supple. In a moral sense, passion with him obtains the mastery; indeed, it is quite impossible for him to master or dissemble his feelings. He is not afraid to allow their workings to become evident, but, in their display, if they

meet with curiosity or admiration he passes all bounds and becomes a perfect spectacle. A Spaniard always allows his feelings to be plainly perceptible.

This habitual weakness for scenic display, which in a people possessing evil instincts would be excessively inconvenient, produces in the Spaniard the best results, since at heart he is full of generosity and nobleness. It endows him with pride, from which spring exalted feelings and good actions; emulation, which prompts him to outdo himself; a moral tone, generosity, dignity and discretion. Nowhere are better understood than in Spain the regard due to age or sex, and the respect called for by rank or position.

Settling Disputes with Knife and Sword.

The pride of the Spaniard renders him very tenacious as regards his honor. He brooks not insult, and seeks to requite it with bloodshed. His hand flies to the sword which is to avenge his honor, or the knife which is to settle his disputes. In Spain arms are carried by all, and their habitual contact—too much neglected in other countries—imparts to each the desire for glory or the hope of playing a leading part in the world.

Such being his disposition, the Spaniard cannot fail to make an excellent soldier. Besides having taste and aptitude for the use of arms, he is vigorous, agile and patient; and therefore worthy to be named honorably in comparison with the French soldier. It is, however, difficult to preserve discipline among these fiery and independent men. They are not always easy to command in time of regular warfare, and when times become troublesome, they become rapidly converted into guerillas, a term which is almost synonymous with brigand.

The Palace of the Escurial.

The Palace of the Escurial, the royal residence of the Spanish sovereigns, is about thirty-five miles from Madrid, on the northern line of railway. Its situation, though ill suited for a residence, is very grand as a piece of natural scenery. It stands with a vast sweep of barren moor in front, which stretches away into the distance in almost endless undulations. Behind it rises a range of hills of noble height and form, dark and savage in the foreground, till, as they recede into the distance, they melt into a tender, delicious blue. The scenery is like that of the Highlands of Scotland. Mr. Sala speaks of it as "a background of mountain scenery more beautiful and sublime than any I have seen out of Mexico."

It affords a striking illustration of the immense size of the Escurial that even in such a situation as this it looks massive and imposing. An

ordinary palace would be dwarfed into insignificance in this waste of moorland and mountain. The stern and severe simplicity of its architecture, almost without decoration or ornamentation of any kind, is in harmony with the scene, and adds to its impressiveness.

THE MAGNIFICENT ESCURIAL—THE RESIDENCE OF THE KINGS OF SPAIN.

The Escurial was built by Philip II., originally with the view of founding a magnificant burial-place for the Spanish sovereigns; but as he proceeded his plans were enlarged, and not only was it formed to receive the royal dead, but it was also designed as a splendid though most gloomy residence for them during their lives. Building became his

favorite pursuit, and the immense pile rose gradually under his auspices. For nineteen years after its completion (it was nearly twenty-two years before it was finished) did this singular sovereign reside within its melancholy walls, and finally he died there in 1598.

As it first appears in sight the palace has a very imposing effect, but a nearer approach rather lessens these first impressions. It has too modern an aspect, though this in reality arises from the materials used in the building, which have in no way suffered from the lapse of time. Still, even on a near approach, it is very fine. The severity and simplicity of taste apparent in the stately pile give a certain grandeur of effect that is very striking on a first view. Its situation is in perfect keeping with its style of architecture. It is, as it were, actually built on the rocks; and, unlike any other royal palace, it has no external embellishments of luxuriant nature to set it off: all is rugged, and grand, and melancholy. The gray granite of which it is composed makes one shudder.

A Marvelous Edifice.

The grand entrance is never opened excepting to admit the reigning sovereign, or the corpse of the monarch when brought there for interment. The sight of the chapel of the Escurial is impressive. Instead of entering it by stately portals, as is usually the case, this sacred edifice is approached from a dark passage. As one emerges from it, and stands at the arched entrance, it is impossible to describe the effect produced by its simple majesty. After a while, you begin to wonder what it is that has produced so startling an impression. There is no ornament of any kind—nothing to interfere with the solemn feeling that one stands in a building consecrated to the worship of the Almighty: there is nothing to diminish the grandeur of the idea. All is solemn and imposing; everything trifling seems banished. One can hardly understand how a Roman Catholic chapel can have preserved such severe simplicity in everything belonging to it. Truly the architect of that chapel was a master in his profession. There are none of those puerile decorations which, in Spain, so often mar the beauty of the churches; but all is in severe taste, from the sombre black-and-white pavement to the beautiful screens of bronze and jasper.

After gazing at this beautiful chapel the visitor is but little inclined to listen to the legends poured forth by the guides, of the relics collected by the "pious founder." They are said to have amounted to between seven and eight thousand. Peyron enumerates eleven whole bodies, three hundred heads, six hundred legs and arms, three hundred and forty-six veins and arteries, fourteen hundred odd bits, teeth, toes, etc. When

the French were here in 1808 they stripped off the gold and precious stones from the shrine, carried away the shrine, and tied up the relics in a table-cloth, sending them with a polite note to the prior.

The "Panteon," or royal sepulchre, is under the chapel, and is so arranged that the royal dead lie immediately below the high altar. Like all the edifices in Spain which are not in actual occupation, the Escurial seems falling out of repair. On every side are traces of dilapidation. If speedy means be not taken to arrest the progress of decay, this immense palace, convent, and sepulchre will soon become a ruin, like the kingdom of which it is at once the centre and the type.

Madrid, in the opinion of some travelers, is, in the matter of theatres

BULL-FIGHTER'S NARROW ESCAPE BY LEAPING THE BARRIER.

and shows, the first city in the world. Besides the Italian Opera, the Teatro Español, the Zarzuela, and the Circo—all theatres of the first rank as regards size, elegance, and public appreciation—there are a large number of small theatres, with dramatic and equestrian troupes—theatres to suit all purses and all tastes, and always full every evening. Masked balls are frequent and largely attended. But your Spaniard likes his amusements best when there is a dash of savagery in them. So the circus for cock-fighting is well patronized, and heavy are the bets as to whether some wretched fowl in its death-agony will move its head once more or not. But there is yet another barbaric sport to which the people rush with enthusiasm—we mean, of course, the famous bull-fights. Ladies

are not now present so universally as was once the case, and the royal family of Spain scarcely ever attend.

According to tradition, it was the Cid Campeador who first couched his lance against a bull in the arena. From that time forth the young nobility of Spain took up the sport with ardor; there were bull-fights at all great festivals in which only noble or royal champions took part. During the Middle Ages, Spaniards and Moors strove to outrival each other's exploits in the arena as on the field of battle. Isabella the Catholic was horrified at the bull-fights and wanted to suppress them, but public opinion was too strong for her. Isabella II. found them specially suited to her taste and disposition and enthusiastically encouraged them. Notwithstanding many of the better class of Spaniards disapprove, condemn, and occasionally protest against it, the cherished institution still flourishes; distinguished bull-fighters live in luxury, and as they show themselves in the Prado or the Puerta del Sol, an admiring populace delights to point them out as heroes, and to tell with pride the story of their marvelous adventures.

The Barbarous Bull-Fight.

The Madrid Bull-ring is outside the Puerta de Alcalà and is capable of accommodating 14,000 spectators. Once a week it is crowded and penniless thousands wait outside to hear, and if possible to get inside. Around the sanded arena on stone benches sit the spectators. With trumpet-blast the ring is cleared and a fierce bull enters. He is met by the "picadors" on their wretched blindfolded nags. The bull rushes at the nearest and receives a spear in his shoulder. Perhaps he recoils and the rider escapes by wheeling his horse to the left. More often the bull, even though wounded, tumbles horse and rider into a heap, and the cloak-bearers rush in to divert the animal's attention. The "picador" is helped to re-mount.

If a bull is energetic and rapid in execution, he will clear the arena in a few moments. He rushes at one horse after another, tears them open with his terrible "spears" ("horns" is a word never used in the ring), and sends them madly galloping over the arena. The assistants watch their opportunity, from time to time, to take the wounded horses out of the ring, plug up their gaping rents with tow, and sew them roughly up for another sally. Of course some of the horses are killed outright at a blow, but it is marvelous how long the gored and patched-up steeds will carry their riders. Sometimes a "picador" is killed.

After several horses have been killed the "banderilleros" come in to play their part. It is their place to insert little barbed darts with flags at

the end in the bull's neck. These darts are often filled at the base with detonating powder which explodes in the neck of the bull. He dances or skips like a kid or a colt in his agony, which is very diverting to the Spanish mind. This process is prolonged as much as possible, and accompanied by wonderful exhibitions of skill and address in evading the bull's assault.

The final act—the death of the bull—comes at last. The "matador"

CAKE AND WATER SELLER—MADRID.

comes forward, bowing to the audience and, sword and cape in hand, confronts the bull. It is always an impressive picture, the tortured, maddened animal, whose flanks are palpitating with his hot breathing, his coat one shining mass of blood from the darts and the spear-thrusts, his massive neck still decked as in mockery with the fluttering flags, his fine head and muzzle seeming sharpened by the hour's terrible experience, his formidable horns crimsoned with the onset; in front of this fiery bulk of

force and courage, the slight, sinewy form of the killer, whose only reliance is on his coolness and intellect. At a favorable moment the sword is thrust to the hilt between the left shoulder and spine, and the bull reels and dies. The heavens are rent with thunderous applause, and in a few minutes another bull bounds into the arena, and the barbarous spectacle is again gone through until six bulls have been slain.

Sights in the Streets of Madrid.

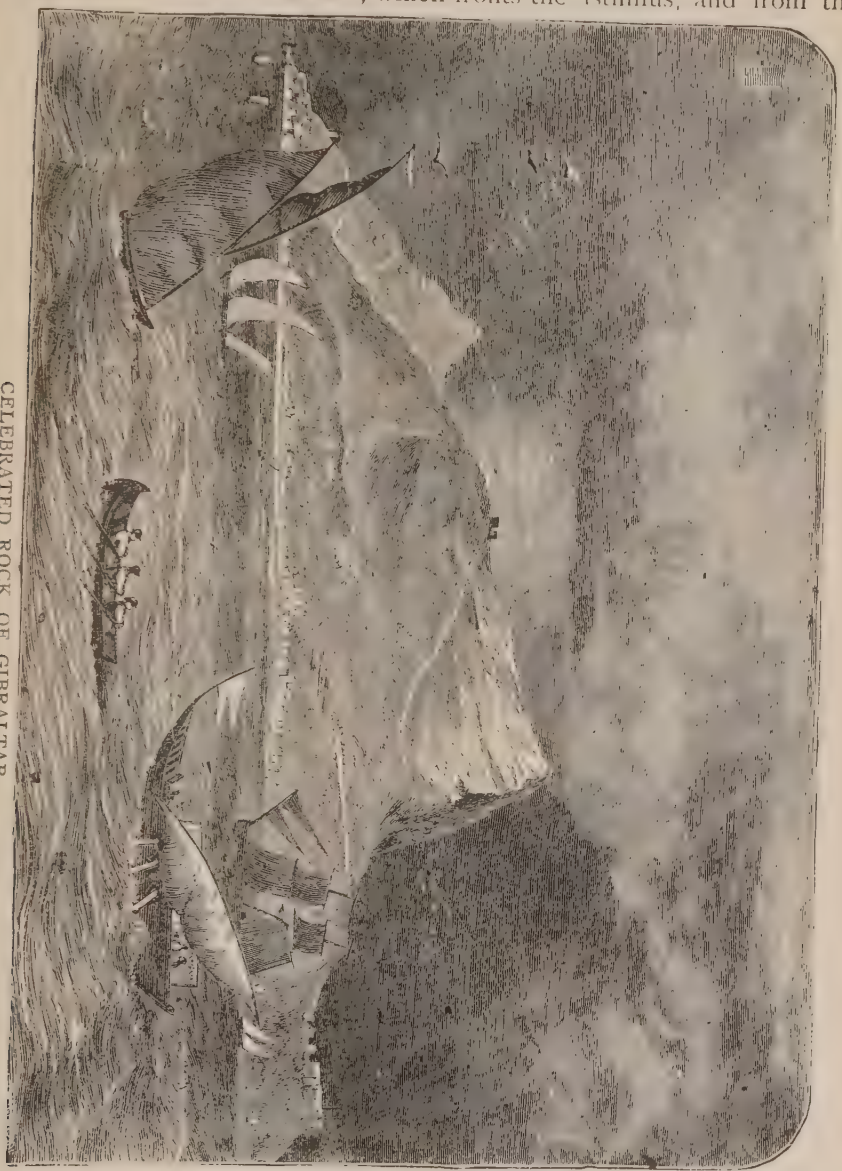
The heart of the city is the Puerta del Sol—not a gate, as its name would imply, but a public place, named after some sun-adorned portal that has long since disappeared. To-day (in spite of the loungers) the Puerta del Sol is gay with busy life and industry. A noisy, ceaseless, open-air traffic is going on all around; all the journals of Madrid are sold here, mostly by women and children, whose shrill voices, especially towards evening, when the most popular sheets appear, make a perfect babel. Here, too, are the clamorous men and urchins, half-clad and often barefoot, who vend wax matches. Your true Spaniard is always smoking, but he smokes in a lazy fashion; his cigar is perpetually going out, and the consumption of wax matches is something prodigious. Very prominent also are the venders of cold water, who, carrying in one hand their straw-wrapped stone-bottle, and in front of them a tray of half-pint glasses and a stock of rose-flavored biscuits made of sugar-paste, shout vociferously, and do a roaring trade, for the copious imbibition of cold water is another of the favorite pursuits of the Madrid populace.

The Rock of Gibraltar.

Turning our attention now away from the ancient capitol, we find one object of surprising interest on the Spanish coast. The Rock of Gibraltar, which, among military men, is regarded as the key to the Mediterranean, has been in the hands of the British for the period of 150 years. It was in 1704 that the English, under Admiral Sir George Rooke, besieged and conquered it from the Spaniards, with the loss of about sixty killed and two hundred wounded. In the following year the Spaniards attempted to retake it, but in vain; they again attacked the fortress in 1727, when they lost 3,000 men in an attempt equally futile. The great siege, however, which drew the attention of the whole world, owing to the magnitude of the operations carried on, and which, by its result, established the high reputation of the British as garrison soldiers, commenced in 1779 and endured until February 1782.

This fortified rock, which was the object of so protracted and desperate a conflict, is above 1300 feet in height, and stands at the extremity of an isthmus which projects into the sea several miles from the main land.

It is about seven miles in circumference, is so steep as to be totally inaccessible from the north side, which fronts the isthmus, and from the



CELEBRATED ROCK OF GIBRALTAR

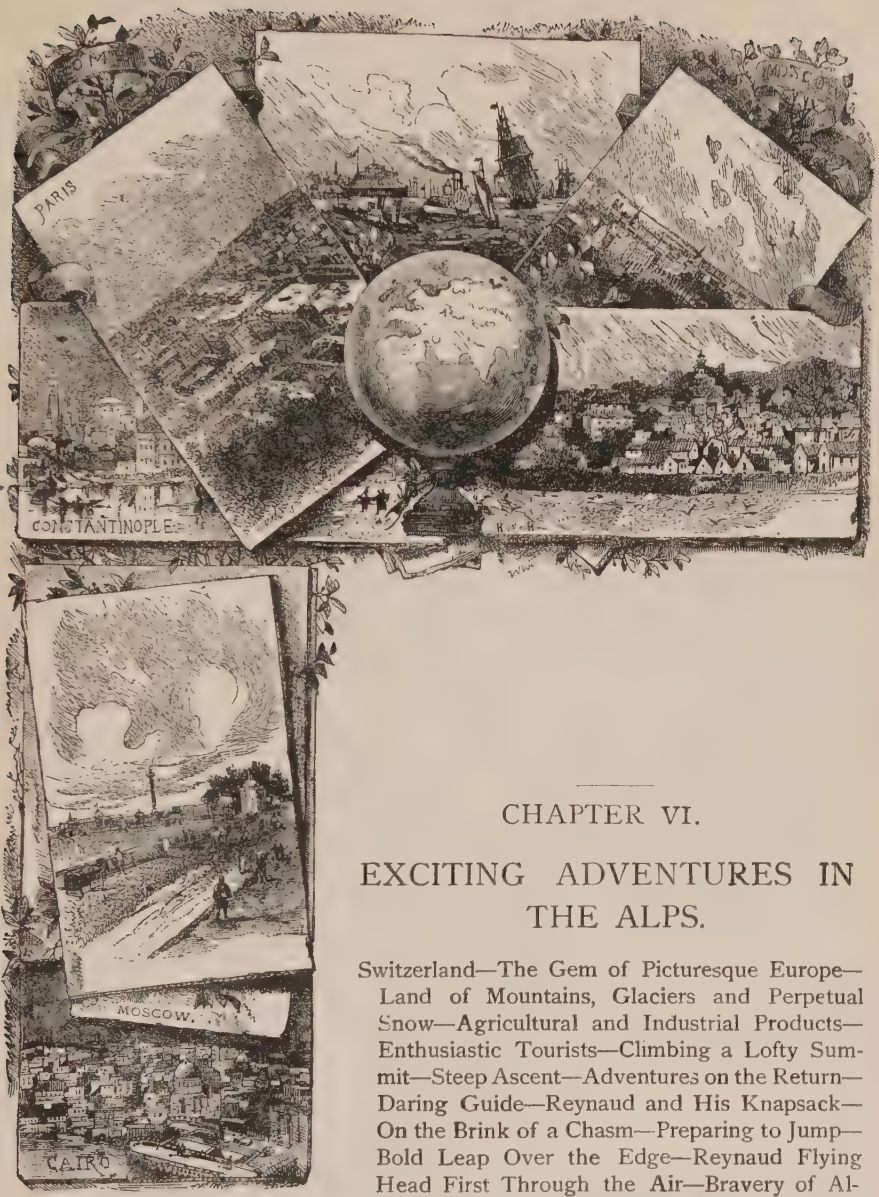
eastern side which fronts the Mediterranean. The south and west sides present a precipitous slope fortified with all the appliances, offensive and defensive, which the ingenuity of man can devise.

The ancients had a fable that Europe and Africa were originally joined at this part, and that the two continents were riven asunder by Hercules, and a passage thus obtained between the Mediterranean Sea and the Atlantic Ocean. Gibraltar under the name of Calpe, and Mount Abyla, opposite to it on the African coast, were called the pillars of Hercules, and appear to have been in very early ages regarded by the people dwelling to the east of them—including the Carthaginians, the Greeks and the Romans—as the western boundary of the world.

Impregnable Fortress.

The promontory of Gibraltar is joined to the Spanish main by a neck of land so narrow that from these aspects it has the appearance of an island. It is about three miles in length from north to south, varying from one-half to three-quarters of a mile in width, and from twelve to fourteen feet in height. The rock is steepest towards the Mediterranean, and gradually declines towards the bay. But here, nature, as if to render Gibraltar inaccessible on all sides, has placed between the foot of the fortress on the west, and the bay of Algeciras, a deep swamp, which extends to the land gate, leaving between them only space sufficient for a very narrow causeway commanded by nearly one hundred pieces of canon. Between the swamp and the bay a small dyke runs along by the seaside to confine the water; and within the enclosure of the fortress the marsh is bordered by a palisade, which begins at the foot of the mountain and terminates at the sea. From this point is distinctly seen the old mole, a kind of jetty, lined on either side with batteries; it entirely masks the new mole which is half a league behind it.

The northern front of the rock is almost perpendicular; the eastern is full of frightful precipices; the southern, being narrow and abrupt, presents hardly any possibility of approach even to an enemy in command of the sea. The western front, although nearly as abrupt as the others, may be approached by shipping from the bay, and on this side accordingly the attacks of assailants have always been presented. The town stands at the foot of the promontory on the north-western side. It is strongly fortified, but its chief protection is derived from the batteries on the neighboring heights, which sweep both the isthmus and the approach of water.



CHAPTER VI.

EXCITING ADVENTURES IN THE ALPS.

Switzerland—The Gem of Picturesque Europe—Land of Mountains, Glaciers and Perpetual Snow—Agricultural and Industrial Products—Enthusiastic Tourists—Climbing a Lofty Summit—Steep Ascent—Adventures on the Return—Daring Guide—Reynaud and His Knapsack—On the Brink of a Chasm—Preparing to Jump—Bold Leap Over the Edge—Reynaud Flying Head First Through the Air—Bravery of Alpine Guides—Hard Mountain to Climb—Perilous Scramble Across an Ice Bridge—Struck by a Hurricane—Terrible Cold—The Famous Matterhorn—Historic Incident—On the Giddy Peak—Making Merry—A Guide's Suggestive Remark—Lashed Together With a Rope—A Fall of 4000 Feet—Horrible Death—Search for Bodies—Ominous Vision in the Sky—Mont Cenis—Famous Road and Railway—Climbing a Mountain by Steam—Curious Mechanical Contrivance—The Third Rail—Simplon Pass—Avalanches and Death—The Hospice—Startling Adventures in Snow and Ice—A Timely Rescue—Scene of Mountain Grandeur.

SWITZERLAND is a federal republic, but the central government is so weak that the twenty-two cantons making up the country, are each, to all intents and purposes, independent States, such as were most of them before they banded together for mutual defence against their foreign enemies. It is essentially the land of the Alps; and hence is the most mountainous and picturesque of central European countries. Indeed, it is nearly impossible to look in any direction from any point of Switzerland without seeing mountains, glaciers, or snow; and accordingly agriculture can be followed only in the valleys, though the mountain sides, as the snow disappears, afford excellent pasture for the herds of cows, sheep, and goats.

No country in the world has a more varied climate. On the mountain-tops are Arctic frosts; in the valleys a summer temperature sufficient for the rearing of crops of maize, hemp, tobacco, and grapes, in addition to all the products of temperate Europe. Forests cover one-sixth of its surface, and only a small portion of the rest of the country can be tilled.

Land of Enthusiastic Tourists.

Owing also to its inland position, its foreign trade is small, though it manufactures silk, cotton, linen, lace, thread, woolens, and, above all, the clocks and watches for which some of its towns, like Neufchatel and Geneva have long been famous. The country contains 15,900 square miles. Railways traverse portions of it, while the lakes of Constance, Zurich, Lucerne, Neufchatel, Geneva, and Bienne afford inland communication, and parts of the Rhine and the upper stretches of the Rhone are also navigable for some distance through Switzerland. Three-fourths of the inhabitants are Germans, the rest are French and Italian.

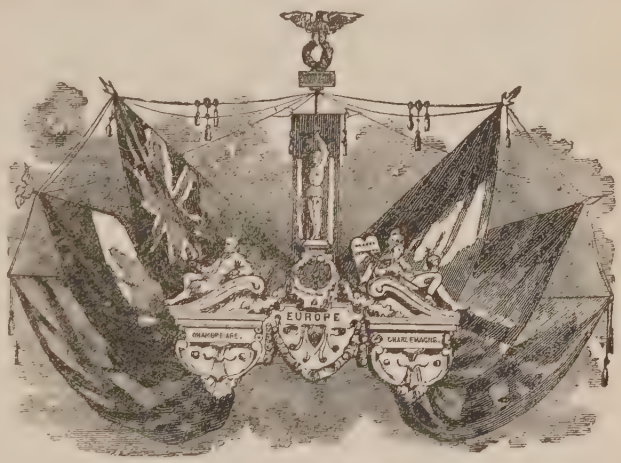
Switzerland attracts tourists from all parts of the world, who are not only charmed with the majestic mountain scenery, but who, in many instances, undertake to climb such peaks as Mont Blanc and the Matterhorn, even at the risk of life. Many enthusiasts visit the Alps every year, and Alpine climbing has become a business.

One of the most successful Alpine climbers in recent years is Mr. Edward Whymper, whose graphic description of his adventures is exceedingly thrilling. We quote from his entertaining narrative of one of his excursions.

Monsieur Reynaud, a scientific explorer, had been invited to accompany us, but had arrived at Val Louise after we had left, and had energetically

pursued us during the night. Our idea was, that a pass might be made over the high ridge called (on the French map) Crete de Bœufs Rouges, near to the peak named Les Bans, which might be the shortest route in time (as it certainly would be in distance) from Val Louise across the central Dauphiné Alps. We had seen the northern (or Pilatte) side, and it seemed to be practicable at one place near the above-mentioned mountain. More than that could not be told at a distance of eleven miles. We intended to try to hit a point on the ridge immediately above the part where it seemed to be easiest.

The course was north-north-west, and was prodigiously steep. In less than two miles' difference of latitude we rose one mile of absolute height. But the route was so far from being an exceptionally difficult one that at 10.45 we stood on the summit of the pass, having made an ascent of more than five thousand feet in five hours, inclusive of halts.



EUROPEAN EMBLEM.

We commenced the ascent of the gully leading to a point in the ridge, just to the east of Mont Bans. So far the route had been nothing more than a steep grind in an angle where little could be seen, but now views opened out in several directions, and the way began to be interesting. It was more so, perhaps, to us than to our companion, M. Reynaud, who had no rest in the last night. He was, moreover, heavily laden. Science was to be regarded—his pockets were stuffed with books; heights and angles were to be observed—his knapsack was filled with instruments; hunger was to be guarded against—his shoulders were ornamented with a huge nimbus of bread, and a leg of mutton swung behind from his knapsack, looking like an overgrown tail.

Like a good-hearted fellow, he had brought this food, thinking we might be in need of it. As it happened, we were well provided for, and, having our own packs to carry, could not relieve him of his superfluous burdens, which, naturally, he did not like to throw away. As the angles

steepened the strain on his strength became more and more apparent. At last he began to groan. At first a most gentle and mellow groan, but as we rose so did his groans, till at last the cliffs were groaning in echo and we were moved to laughter.

Our sturdy guide, Croz, cut the way with unflagging energy throughout the whole of the ascent, and at length we stood on the summit of our pass, intending to refresh ourselves with a good halt; but just at that moment a mist, which had been playing about the ridge, swooped down and blotted out the whole of the view on the northern side.

Suddenly Compelled to Descend.

Croz was the only one who caught a glimpse of the descent, and it was deemed advisable to push on immediately while its recollection was fresh in his memory. We are consequently unable to tell anything about the summit of the pass, except that it lies immediately to the east of Mont Bans, and is elevated about eleven thousand three hundred feet above the level of the sea. It is the highest pass in Dauphiné.

We commenced to descend by a slope of smooth ice, the face of which, according to measurement, had an inclination of 54 degrees! Croz still led, and the others followed at intervals of about fifteen feet, all being tied together, Almer, the other guide, occupying the responsible position of last man: the two guides were therefore about seventy feet apart. They were quite invisible to each other from the mist, and looked spectral even to us. But the strong man could be heard by all hewing out the steps below, while every now and then the voice of the steady man pierced the cloud; "Slip not, dear sirs; place well your feet; stir not until you are certain."

For three-quarters of an hour we progressed in this fashion. The ax of Croz all at once stopped. "What is the matter, Croz?" "Matter enough, gentlemen." "Can we get over?" "Upon my word, I don't know; I think we must jump." The clouds rolled away right and left as he spoke. The effect was dramatic. It was preparatory to the "great sensation leap" which was about to be executed by the entire company.

Caught on the Edge of a Chasm.

Some unseen cause, some cliff or obstruction in the rocks underneath, had caused our wall of ice to split into two portions, and the huge fissure which had thus been formed extended on each hand as far as could be seen. We, on the slope above, were separated from the slope below by a mighty crevasse. No running up and down to look for an easier place to cross could be done on an ice-slope of 54 degrees; the chasm had to be passed then and there.

REYNAUD'S PERILOUS FALL FROM THE SNOW-CLIFF.

A downward jump of fifteen or sixteen feet, and a forward leap of seven or eight feet, had to be made at the same time. That is not much, you will say. It was not much; it was not the quantity, but it was the quality of the jump which gave to it its particular flavor. You had to hit a narrow ridge of ice. If that was passed, it seemed as if you might roll down for ever and ever. If it was not attained, you dropped into the crevasse below, which although partly choked by icicles and snow that had fallen from above, was still gaping in many places, ready to receive an erratic body.

A Jump Head Foremost.

Croz untied Walker, one of our party, in order to get rope enough, and, warning us to hold fast, sprang over the chasm. He alighted cleverly on his feet, untied himself and sent up the rope to Walker, who followed his example. It was then my turn, and I advanced to the edge of the ice. The second which followed was what is called a supreme moment. That is to say, I felt supremely ridiculous. The world seemed to revolve at a frightful pace and my stomach to fly away. The next moment I found myself sprawling in the snow, and then, of course, vowed that it was nothing, and prepared to encourage my friend Reynaud.

He came to the edge and made declarations. I do not believe that he was a whit more reluctant to pass the place than we others, but he was infinitely more demonstrative: in a word, he was French. He wrung his hands: "Oh, what a terrible place!" "It is nothing, Reynaud," I said, "it is nothing." "Jump!" cried the others, "jump!" But he turned round, as far as one can do such a thing in an ice-step, and covered his face with his hands, ejaculating, "Upon my word, it is not possible. No, no, no! it is not possible."

How he came over I do not know. We saw a toe—it seemed to belong to Moore, another of our party; we saw Reynaud, a flying body, coming down as if taking a header into water, with arms and legs all abroad, his leg of mutton flying in the air, his stock escaped from his grasp; and then we heard a thud as if a bundle of carpets had been pitched out of a window. When set upon his feet he was a sorry spectacle: his head was a great snow-ball, brandy was trickling out of one side of the knapsack, wine out of the other. We bemoaned its loss, but we roared with laughter.

Exploits of a Guide.

I must pay a tribute to the ability with which Croz led us through a dense mist down the remainder of the route. As an exhibition of strength and skill it has probably never been surpassed in the Alps or elsewhere.

On this almost unknown and very steep glacier he was perfectly at home, even in the mists. Never able to see fifty feet ahead, he still went on with the utmost certainty and without having to retrace a single step, and displayed from first to last consummate knowledge of the materials with which he was dealing. Now he cut steps down one side of a gully, went with a dash at the other side, and hauled us up after him; then cut away along a ridge until a point was gained from which we could jump on to another ridge; then, doubling back, found a snow-bridge, across which he crawled on hands and knees, towed us across by the legs, ridiculing our apprehensions, mimicking our awkwardness, declining all help, bidding us only to follow him.

We emerged from the mist, and found ourselves just arrived upon the level portion of the glacier, having as Reynaud properly remarked, come down as quickly as if there had not been any mist at all. Then we attacked the leg of mutton which my friend had so thoughtfully brought with him, and afterward raced down, with renewed energy.

ALPINE GUIDE.

The Dent Blanche is a mountain little known except to the climbing fraternity. It was, and is reputed to be one of the most difficult mountains in the Alps. Many attempts were made to scale it before its ascent was accomplished. Even Leslie Stephen himself, fleetest of foot of the whole Alpine brotherhood, once upon a time returned discomfited from it.

It was not climbed until 1862, but in that year Mr. T. S. Kennedy, with Mr. Wigram and the guides Jean B. Croz and Kronig, managed to conquer it. They had a hard fight, though, before they gained the victory; a furious wind and driving snow, added to the natural difficulties, nearly turned the scale against them.

I thought it might be possible to find an easier route than that taken by Mr. Kennedy, and that if we succeeded in discovering one we should be able to vaunt our superior wisdom. I halted my little army at the foot of the glacier, and inquired, "Which is best for us to do?—to

ascend the Dent Blanche, or to cross to Zermatt?" They answered, with befitting solemnity, "We think Dent Blanche is best."

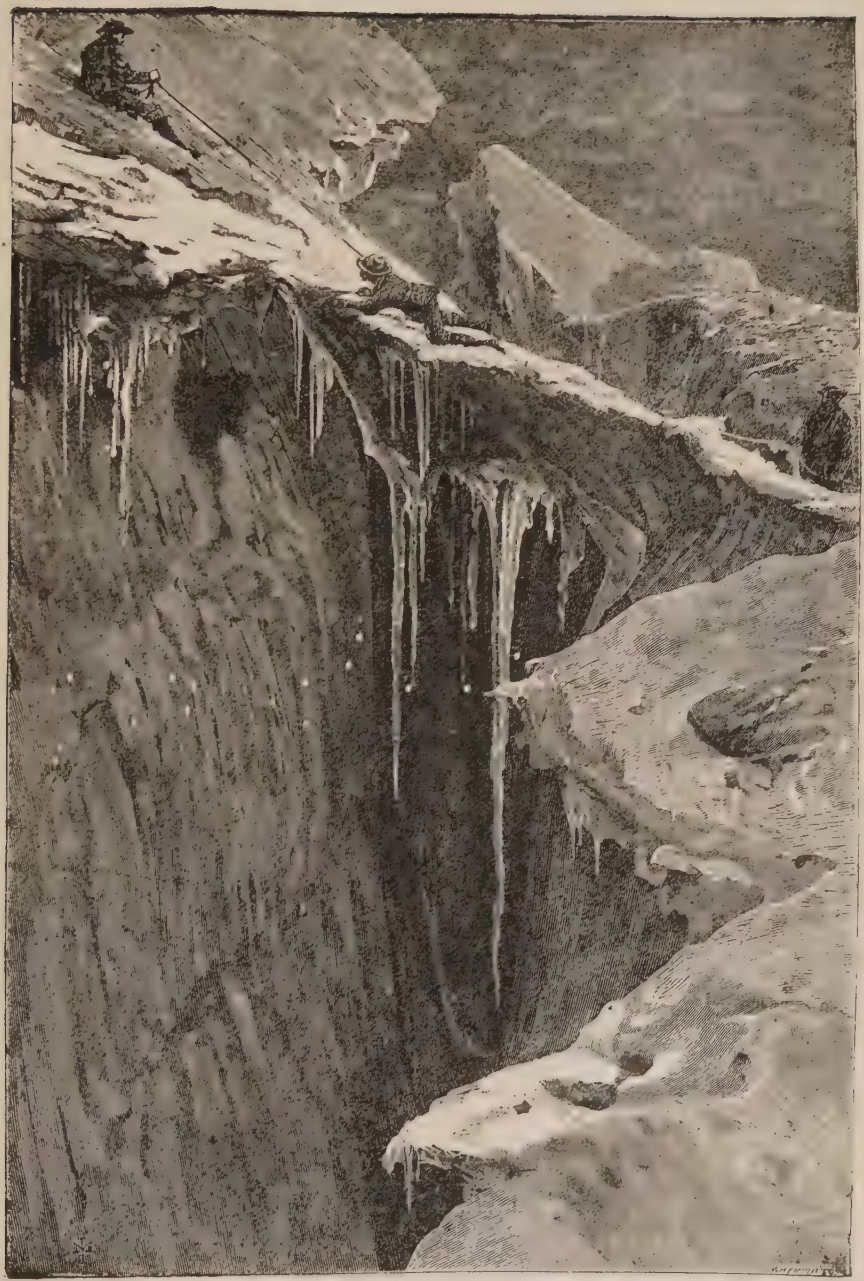
We zig-zagged up the glacier along the foot of the face, and looked for a way on to it. We looked for some time in vain, for a mighty crevasse effectually prevented approach, and, like a fortress' moat, protected the wall from assault. We went up and up, until, finally, a bridge was discovered, and we dropped down on hands and knees to cross it. In the month of June or before, crevasses are usually snowed up or well bridged over, and do not give much trouble. Later in the year, say in August, they are frequently very great hindrances, and occasionally are completely impassable.

Difficult Climbing.

We crossed the chasm of the Dent Blanche, I suppose, at a height of about twelve thousand feet above the level of the sea. Our work may be said to have commenced at that point. The face, although not steep in its general inclination, was so cut up by little ridges and cliffs, and so seamed with incipient gullies, that it had all the difficulty of a much more precipitous slope. The difficulties were never great, but they were numerous, and made a very respectable total when put together. We passed the chasm soon after nine in the morning, and during the next eleven hours halted only five and forty minutes. The whole of the remainder of the time was occupied in ascending and descending the twenty-four hundred feet which compose this south-western face; and inasmuch as one thousand feet per hour (taking the mean of ascent and descent) is an ordinary rate of progression, it is tolerably certain that the Dent Blanche is a mountain of exceptional difficulty.

The hindrances opposed to us by the mountain itself were, however, as nothing compared with the atmospheric obstructions. It is true there was plenty of—"Are you fast, Almer?" "Yes." "Go ahead, Biener." Biener, made secure, cried, "Come on, sir," and *monsieur* endeavored. "No, no," said Almer, "not there—*here!*" pointing with his alpenstock, or stick, to the right place to clutch. Then 'twas Croz's turn, and we all drew in the rope as the great man followed. "Forward" once more—and so on.

Five hundred feet of this kind of work had been accomplished when we were saluted (not entirely unexpectedly) by the first gust of a hurricane which was raging above. The day was a lovely one for dwellers in the valleys, but we had long ago noted some light, gossamer clouds that were hovering round our summit, being drawn out in a suspicious manner into long, silky threads. Croz, indeed, prophesied before we had



CROSSING AN ICE-BRIDGE OVER AN IMMENSE CHASM.

crossed the crevasse that we should be beaten by the wind, and had advised that we should return. But I had retorted, "No, my good Croz, you said just now, 'Dent Blanche is best;' we must go up the Dent Blanche."

Freaks of the Wind.

I have a very lively and disagreeable recollection of this wind. Upon the outskirts of the disturbed region it was only felt occasionally. It then seemed to make rushes at one particular man, and when it had discomfited him, it whisked itself away to some far-off spot, only to return presently in greater force than before.

The Matterhorn, seen in the distance, looked totally unassailable. "Do you think," the men asked, "that you or anyone else will ever get up *that* mountain?" And when, undismayed by their ridicule, I stoutly answered, "Yes, but not upon that side," they burst into derisive chuckles. I must confess that my hopes sank, for nothing can look, or be more completely inaccessible than the Matterhorn on its northern and north-west sides.

At length we struck the great ridge, followed by Mr. Kennedy, close to the top of the mountain. The wind and cold were terrible there. The men rose with the occasion, although even their fingers had nearly lost sensation. There were no murmurings or suggestions of return, and they pressed on for the little white cone which they knew must be near at hand. Stopped again—a big mass perched loosely on the ridge barred the way; we could not crawl over and scarcely dared creep round it.

Nearly Frozen to Death.

We commenced the descent of the face. It was hideous work. The men looked like impersonations of winter, with their hair all frosted and their beards matted with ice. My hands were numbed—dead. I begged the others to stop. "We cannot afford to stop; we must continue to move," was their reply. They were right; to stop was to be entirely frozen. So we went down, gripping rocks varnished with ice, which pulled the skin from the fingers. Gloves were useless; they became iced too, and the bâtons slid through them as slippery as eels. The iron of the axes stuck to the fingers—it felt red hot; but it was useless to shrink; the rocks and the axes had to be firmly grasped—no faltering would do here.

We turned back at 4.12 P. M., and at 8.15 crossed the big crevasse again, not having halted for a minute upon the entire descent. During the last two hours it was windless, but time was of such vital importance that we pressed on incessantly, and did not stop until we were fairly upon

the glacier. Then we took stock of what remained of the tips of our fingers. There was not much skin left; they were perfectly raw, and for weeks afterward I was reminded of the ascent of the Dent Blanche by the twinges which I felt when I pulled on my boots. The others escaped with some slight frost bites, and altogether we had reason to congratulate ourselves that we got off so lightly. The men complimented me upon the descent, and I could do the same honestly by them. If they had worked less vigorously or harmoniously, we should have been benighted upon the face, where there was not a single spot upon which it was possible to sit; and if that had happened, I do not think that one would have survived to tell the tale.

Terrible Accident and Loss of Life on the Matterhorn.

The Matterhorn, as seen from Zermatt, stands alone and incomparable. Its northern face appears a single obelisk of rock rising, naked and precipitous, from the glacier about its base. "Other peaks," says Mr. Ball, "such as some of the Chamouni Aiguilles may appear as bold in outline but they want the air of solidity peculiar to this unmatched peak. With an audacity that seems to defy the universe, it rears its front 5000 feet above the snow fields at its base, as though its massive framework could support the shock of a world in ruins."

The year 1865 will be forever memorable in the annals of Swiss mountaineering, from the terrible tragedy which followed upon the first and probably the only successful attempt to ascend the Matterhorn. The following is Mr. Whymper's narrative:

On Wednesday morning, the 12th of July, Lord Francis Douglas and myself engaged Peter Taugwalder, and gave him permission to choose another guide. In the course of the evening, the Rev. Charles Hudson came into our hotel with a friend, Mr. Hadow, and they, in answer to some inquiries, announced their intention of starting to attack the Matterhorn on the following morning. Lord Francis Douglas agreed with me it was undesirable that two independent parties should be on the mountain at the same time with the same object. Mr. Hudson was therefore invited to join us, and he accepted our proposal.

Before admitting Mr. Hadow, I took the precaution to inquire what he had done in the Alps, and, as well as I remember, Mr. Hudson's reply was: "Mr. Hadow has done Mont Blanc in less time than most men." He then mentioned several other excursions that were unknown to me, and added, in answer to a further question, "I consider he is a sufficiently good man to go with us." This was an excellent certificate, given us, as was, by a first-rate mountaineer, and Mr. Hadow was admitted without

any further question. We then went into the matter of guides. Michel Croz was with Messrs. Hadow and Hudson, and the latter thought if Peter Taugwalder went as well, that there would not be occasion for anyone else. The question was referred to the men themselves and they made no objection.

Making a Start.

We left Zermatt at 5.35 on Thursday morning, taking the two young Taugwalders as porters, by the desire of their father. They carried provisions amply sufficient for the whole party for three days, in case the ascent should prove more difficult than we anticipated.

It was our intention on leaving Zermatt to attack the mountain seriously—not, as it had been frequently stated, to explore or examine it—and we were provided with everything that long experience has shown to be necessary for the most difficult mountains. On the first day, however we did not intend to ascend to any great height, but to stop when we found a good position for placing the tent. We mounted accordingly very leisurely, left the Lac Noir at 8.20, and passed along the ridge connecting the Hornli with the actual peak, at the foot of which we arrived at 11.20, having frequently halted on the way. We then quitted the ridge, went to the left, and ascended by the north-eastern face of the mountain.

Before 12 o'clock we had found a good position for the tent, at a height of 11,000 feet; but Croz and the elder of Taugwalder's sons went on to see what was above, in order to save time the following morning. The remainder constructed the platform on which the tent was to be placed, and by the time this was finished the two men returned, reported joyfully that as far as they had gone they had seen nothing but that which was good, and asserted positively that had we gone on that day we could have ascended the mountain, and have returned to the tent with facility. We passed the remaining hours of daylight—some basking in the sunshine, some sketching or collecting, and, when the sun went down, giving, as it departed, a glorious promise for the morrow, we returned to the tent to arrange for the night.

Merry Party on the Eve of Death.

Hudson made tea, myself coffee, and we then retired each one to his blanket bag; the Taugwalders, Lord Francis Douglas and myself, occupying the tent, the others remaining, by preference, outside. But long after dusk the cliffs above echoed with our laughter and the songs of the guides, for we were happy that night in camp, and did not dream of calamity.

We were astir long before daybreak on the morning of the 14th, and started directly it was possible to move, leaving the youngest of Taugwalder's sons behind. At 6.20 we had attained a height of 12,800 feet, and halted for half an hour, then continued the ascent without a break until 9.55, when we stopped for fifty minutes, at a height probably of about 14,000 feet.

Thus far we had ascended by the north-eastern face of the mountain, and had not met with a single difficulty. For the greater part of the way there was, indeed, no occasion for the rope, and sometimes Hudson led sometimes myself. We had now arrived at the foot of that part which from Zermatt seems perpendicular or overhanging, and we could no longer continue on the same side. By common consent, therefore, we turned over to the right, or to the north-western face.

Before doing so, we made a change in the order of ascent; Croz now went first, I followed, Hudson came third; Hadow and old Taugwalder were last. The change was made because the work became difficult for a time and required caution. In some places there was but little to hold, and it was therefore desirable those should be in front who were least likely to slip The general slope of the mountain at this part was less than forty degrees, and snow had consequently accumulated and filled up the irregularities of the rock face, leaving only occasional fragments projecting here and there. These were at times coated with a thin glaze of ice, from the snow above having melted and frozen again during the night. Still it was a place over which any fair mountaineer might pass in safety.

Arriving at the Summit.

We found, however, that Mr. Hadow was not accustomed to this kind of work, and required continual assistance; but no one suggested that he should stop, and he was taken to the top. It is only fair to say that the difficulty experienced by Mr. Hadow at this part arose, not from fatigue or lack of courage, but simply and entirely from want of experience. Mr. Hudson, who followed me, passed over this part, and, as far as I know, ascended the entire mountain without having the slightest assistance rendered to him on any occasion.

Sometimes, after I had taken a hand from Croz or received a pull, I turned to give the same to Hudson, but he invariably declined, saying it was not necessary. This solitary difficult part was of no great extent, certainly not more than three hundred feet high, and after it was passed the angles became less and less as we approached the summit; at last the slope was so moderate that Croz and myself detached ourselves from the others,

and ran on to the top. We arrived there at 1.40 P. M., the others about ten minutes after us.

I have been requested to describe particularly the state of the party on the summit. No one showed any sign of fatigue, neither did I hear anything to lead me to suppose that anyone was at all tired. I remember Croz laughing at me when I asked him the question. We had, indeed, been moving less than ten hours, and during that time had halted for nearly two. The only remark which I heard suggestive of danger was made by Croz, but it was quite casual, and probably meant nothing. He said, after I had remarked that we had come up very slowly, "Yes; I would rather go down with you and another guide alone than with those who are going." As to ourselves, we were arranging what we should do that night on our return to Zermatt.

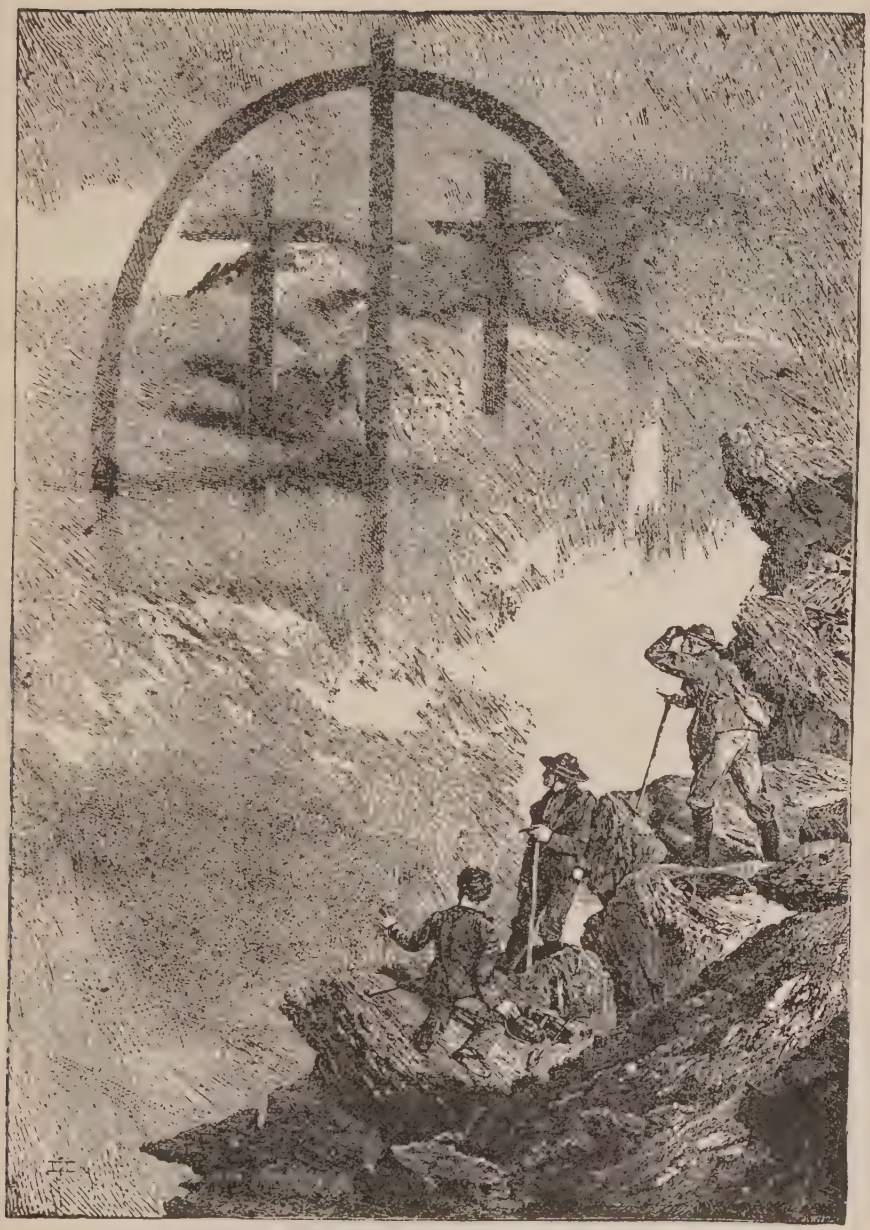
Preparing for the Perilous Descent.

We remained on the summit for one hour, and during the time Hudson and I consulted, as we had done all the day, as to the best and safest arrangement of the party. We agreed that it would be best for Croz to go first, as he was the most powerful, and Hadow second; Hudson, who was equal to a guide in sureness of foot, wished to be third; Lord Douglas was placed next, and old Taugwalder, the strongest of the remainder, behind him.

I suggested to Hudson that we should attach a rope to the rocks on our arrival at the difficult bit, and hold it as we descended, as an additional protection. He approved the idea, but it was not definitely settled that it should be done. The party was being arranged in the above order while I was making a sketch of the summit, and they were waiting for me to be tied in my place, when some one remembered that we had not left our names in a bottle; they requested me to write them, and moved off while it was being done.

A few minutes afterwards I tied myself to young Taugwalder and followed, catching them just as they were commencing the descent of the difficult part described above. The greatest care was being taken. Only one man was moving at a time; when he was firmly planted the next advanced, and so on. The average distance between each was probably twenty feet. They had not, however, attached the additional rope to the rocks and nothing was said about it. The suggestion was made entirely on account of Mr. Hadow, and I am not sure it even occurred to me again.

I was, as I have explained, detached from the others, and following them; but after about a quarter of an hour Lord Douglas asked me to



REMARKABLE FOG-BOW SEEN FROM MATTERHORN.

tie on to old Taugwalder, as he feared, he said, that if there was a slip, Taugwalder would not be able to hold him. This was hardly done ten minutes before the accident, and undoubtedly saved Taugwalder's life.

The Fatal Fall.

As far as I know, at the moment of the accident, no one was actually moving. I cannot speak with certainty, neither can the Taugwalders, because the two leading men were partially hidden from our sight by an intervening mass of rock. Poor Croz had laid aside his axe, and in order to give Mr. Hadow greater security, was absolutely taking hold of his legs, and putting his feet one by one into their proper positions. From the movements of their shoulders, it is my belief that Croz, having done as I have said, was in the act of turning round to go down a step or two himself; at this moment Mr. Hadow slipped, fell on him, and knocked him over.

I heard one startled exclamation from Croz, then saw him and Mr. Hadow flying downwards; in another moment Hudson was dragged from his steps and Lord Douglas immediately after him. All this was the work of a moment; but immediately we heard Croz's exclamation, Taugwalder and myself planted ourselves as firmly as the rocks would permit; the rope was tight between us, and the shock came on us both as on one man. We held; but the rope broke midway between Taugwalder and Lord Douglas.

For two or three seconds we saw our unfortunate companions sliding downwards on their backs, and spreading out their hands endeavoring to save themselves; they then disappeared one by one, and fell from precipice to precipice on to the Matterhorn glacier below, a distance of nearly four thousand feet in height. From the moment the rope broke it was impossible to help them.

Petrified With Horror.

For the space of half an hour we remained on the spot without moving a single step. The two men, paralyzed by terror, cried like infants, and trembled in such a manner as to threaten us with the fate of the others. Immediately we had ascended to a safe place, I asked for the rope that had broken, and to my surprise—indeed, to my horror—found that it was the weakest of the three ropes. As the first five men had been tied while I was sketching, I had not noticed the rope they employed; and now I could only conclude that they had seen fit to use this in preference to the others. It has been stated that the rope broke in consequence of its raying over a rock; this is not the case; it broke in mid-air, and the end doe not show any trace of previous injury.

For more than two hours afterwards I thought every moment that the next would be my last; for the Taugwalders, utterly unnerved, were not only incapable of giving assistance, but were in such a state that a slip might have been expected from one or the other at any moment. I do the younger man, moreover, no injustice when I say that immediately we got to the easy part of the decent, he was able to laugh, smoke, and eat as if nothing had happened.

Startling Vision in the Sky.

About 6 P. M. we arrived at the snow upon the ridge descending toward Zermatt, and all peril was over. We frequently looked but in vain, for traces of our unfortunate companions; we bent over the ridge and cried to them, but no sound returned. Convinced at last that they were within neither sight nor hearing, we ceased from our useless efforts, and, too cast down for speech, silently gathered up our things and the little effects of those who were lost, preparatory to continuing the descent, when lo! a mighty arch appeared, rising above the Lyskamm high into the sky.

Pale, colorless and noiseless, but perfectly sharp and defined, except where it was lost in the clouds, this unearthly apparition seemed like a vision from another world, and, almost appalled, we watched with amazement the gradual development of two vast crosses, one on either side. If the Taugwalders had not been the first to perceive it, I should have doubted my senses. They thought it had some connection with the accident, and I, after awhile, that it might bear some relation to ourselves. But our movements had no effect upon it. The spectral forms remained motionless. It was a fearful and wonderful sight, unique in my experience, and impressive beyond description, coming at such a moment. We arrived at Zermatt at 10.30 on Saturday morning.

Shocking Discovery.

Immediately on my arrival I sent to the President of the Commune, and requested him to send as many men as possible to ascend heights whence the spot could be commanded where I knew the four must have fallen. A number went and returned after six hours reporting that had seen them but that they could not reach them that day. They proposed starting on Sunday evening so as to reach the bodies at daybreak on Monday; but, unwilling to lose the slightest chance, the Rev. J. McCormick and myself resolved to start on Sunday morning. By 8.30 we had got on to the plateau, and within sight of the corner in which we knew my companions must be.

As we saw one weather-beaten man after another raise the telescope, turn deadly pale, and pass it on without a word to the next, we knew that

all hope was gone. We approached; they had fallen below as they had fallen above—Croz a little in advance, Hadow near him, and Hudson some distance behind; but of Lord Douglas we could see nothing.

By order of the Swiss Government the bodies were removed from their icy sepulchre at the foot of the Matterhorn for interment in the village of Zermatt.

Marvels of Mont Cenis.

Traveling in the Alps is, of course, very difficult, and only at great expense have highways and railroads been constructed between important points. No locality is more interesting to the tourist at the present time than Mont Cenis, which boasts the longest tunnel in the world.

Guide-books say that the pass of the Mont Cenis is dull. It is long, certainly, but it has a fair proportion of picturesque points, and it is not easy to see how it can be dull to those who have eyes. In the days when it was a rude mountain track, crossed by trains of mules, and when it was better known to smugglers than to tourists, it may have been dull; but when Napoleon's road changed the rough path into one of the finest highways in Europe, mounting in grand curves and by uniform grades, and rendered the trot possible throughout its entire distance, the Mont Cenis became one of the most interesting passes in the Alps. The diligence service which was established was excellent, and there was little or nothing to be gained by traveling in a more expensive manner. The horses were changed as rapidly as on the best lines in the best period of coaching in England, and the diligences themselves were as comfortable as a "milord" could desire.

The most exciting portion of the route was undoubtedly that between Lanslebourg and Susa. When the zigzags began, teams of mules were hooked on, and the driver and his helpers marched by their side with long whips, which they handled skillfully. Passengers dismounted and stretched their legs by cutting the curves. The pace was slow but steady, and scarcely a halt was made during the rise of two thousand feet. Crack! crack! went the whips as the corners of the zigzags were turned. Great commotion among the mules! They scrambled and went round with a rush, tossing their heads and making music with their bells.

On the Gallop.

The summit was gained, the mules were detached and trotted back merrily, while we, with fresh horses, were dragged at the gallop over the plain to the other side. The little postilion seated on the leader smacked his whip lustily as he swept round the corners, cut through the rock, and threw his head back as the echoes returned, expectant of smiles and of future pennies.

The air was keen and often chilly, but the summit was soon passed, and one quickly descended to warmth again. Once more there was a change.

THE MONT CENIS ROAD AND THE FELL RAILWAY ON THE ITALIAN SIDE

The horses, reduced in number to three, or perhaps two, were the sturdiest and most sure of foot, and they raced down with the precision of old stagers. Woe to the diligence if they stumbled! So thought the con-

ductor, who screwed down the brakes as the corners were approached. The horses, held well in hand, leaned inward as the top-heavy vehicle, so suddenly checked, heeled almost over; but in another moment the brake was released, and again they swept down, urged onward by the whip, "hoi" and "ha" of the driver.

All this is changed. The Victor Emmanuel railway superseded a considerable portion of Napoleon's road, and the "Fell" railway the rest, while the great tunnel of the Alps has brought about another change.

Extraordinary Railway.

The Fell railway is a line that well deserves attention. Mr. Charles Vignolles, the eminent engineer, and Mr. Ericsson patented the idea which is now an accomplished fact on the Mont Cenis. Nothing was done with it until Mr. Fell, the projector of the railway which bears his name, took it up, and to him much credit is due for bringing an admirable principle into operation.

The Fell railway follows the great Cenis road very closely, and diverges from it only to avoid villages or houses, or, as at the summit of the pass on the Italian side, to ease the gradients. The line runs from St. Michel to Susa. The distance between these two places is, as the crow flies, thirty miles, but by reason of the numerous curves and detours the length of the line is brought up to forty-seven miles. From St. Michel to the summit of the pass it rises 4460 feet, and from the summit of the pass to Susa, a distance less than ten miles, it descends no less than 5211 feet!

The railway itself is a marvel. For fifteen miles and three-quarters it has steeper gradients than one foot in fifteen. In some places it is one in twelve and a half! A straight piece of railway constructed on such a gradient seems to go up a steep hill. One foot in eighty, or even one in a hundred, produces a very sensible diminution in the pace of a light train drawn by an ordinary locomotive: how, then, is a train to be taken up an incline that is six times as steep?

Ingenious Contrivance.

It is accomplished by means of a third rail placed midway between two ordinary ones, and elevated above them. This third rail, or, as it is termed "the centre rail," is laid on all the steep portions of the line and round all except the mildest curves. Thirty miles, in all, of the road have the centre rail. The engines are provided with two pairs of horizontal driving-wheels, as well as with the ordinary coupled vertical ones, and the power of the machine is thus enormously increased, the horizontal wheels gripping the centre rail with great tenacity by being brought together,

and being almost incapable of slipping like the ordinary wheels when on even a moderate gradient.

The next remarkable point on the line is at Termignon. The valley turns somewhat abruptly to the east, and the course of the railway is not at first perceived. It makes a great bend to the left, then doubles back, and rises in a little more than a mile no less than three hundred and thirty-four feet. This is, perhaps, the most striking piece of the whole line.

It is curious and interesting to watch the ascent of the trains from Lanslebourg. The puffs of steam are seen rising above the trees, sometimes going in one direction, and sometimes directly the contrary, occasionally concealed by the covered ways—for over two miles out of the six the line is enclosed by planked sides and a corrugated iron roof, to keep out the snow—and then coming out again into daylight. A halt for water has to be made about halfway up; but the engines are able to start again, and to resume their rate of seven miles an hour, although the gradient is no less than one in fourteen and a half.

The zigzags of the old Cenis road are well known as one of the most remarkable pieces of road-engineering in the Alps. The railway follows them, and runs parallel to the road on the outside throughout its entire distance, with the exception of the turns at the corners, where it is carried a little farther out, to render the curves less sharp. Nevertheless, they are sufficiently sharp, and would be impracticable without the centre rail.

Frightful Dangers of the Simplon Pass.

Approaching the lakes of Northern Italy from Switzerland, the route commonly taken is by one or other of the roads leading over the passes of the St. Gothard, the Simplon, or the Splugen.

These roads have been constructed at an immense cost both of time and money, and are throughout grandly engineered. Sometimes the path has been actually chiseled out of the face of perpendicular rock, with an awful gulf on one side, and overhanging beetling cliffs on the other. Sometimes it has been tunneled through the heart of the mountain, or flung at a dizzy height across a ravine, or carried in a series of zigzags up the side of a mountain, so steep that the chamois could scarcely climb it. At Gondo on the Simplon, a cataract hurls itself sheer over the road from the cliffs above, and plunges into the abyss below. On the St. Gothard, and the Splugen, the gorge was absolutely impassable, and it was necessary to blast a passage through the huge masses of rock which blocked up the way.

The poverty-stricken canton of Uri had succeeded, with extreme difficulty, in scraping together the means to complete her part of the St.

Gothard route, when a storm burst on the summit of the pass, which, in a few hours, swept away one-third of the road constructed at so much labor and cost. Five years later, a similar tempest effected nearly equal injury. And few years pass without some portion of the road being destroyed. In many places avalanches sweep over the roads with destructive force, and it becomes necessary to construct galleries which shall defend travelers, and shoot the mass of snow and debris into the gorge below.

The Fatal Avalanche.

A traveler writing from Rome in May, 1879, gives a graphic account of one of these terrible avalanches: Nowhere has this exceptionally severe spring been felt so acutely as on the mountain passes between Switzerland and Italy. Recently there occurred a scene of disaster and death rarely paralleled in those regions of snowdrift and avalanche. The Simplon pass is the route by which more than ten thousand Italian workmen annually make their way into Switzerland and France in quest of employment, and it was on some thirty-two of these wayfarers that the visitation descended from which nothing but the noble heroism of the poor monks of the Hospice could have saved them. Thanks to that institution and its attendants, only one out of the thirty-two Italians lost his life, although three of the men attached to it have been engulfed in the avalanche, and will not be found till the melting snows have unshrouded their bodies on the mountain side.

After waiting several days, three companies of these Italians, consisting respectively of fifteen, ten, and nine persons, set out at once, and by one in the afternoon arrived at Refuge 6, where they rested for a little, as the snow was coming down with increasing force and density.

Two sturdy Swiss youths attached to the Refuge offered to conduct the travelers, and off the three companies set once more, with their two guides at their head. Scarcely, however, had they emerged from the middle gallery called La Vieille Galérie—the most dangerous part of the Simplon route—when an enormous avalanche descended from the mountain, carrying with it the two guides and an Italian workman who walked beside them. The rest of the travelers who remained in the galleries were so far safe, but they soon saw the terrible predicament they were in, no longer able to advance or retrace their steps, as both ends of the gallery were blocked up with snow.

Face to Face with Death.

They were in despair, and already the cold was beginning to tell on the children of the party, and cries of misery resounded through the

living tomb. Suddenly a man's voice rose above the wailing: "We might as well die under an avalanche as under a gallery. Let us try and get out." And so without further parley he set to work and succeeded in excavating a passage through the snow, and arrived half dead at Refuge 6, whence the alarm was passed on to the Hospice.

One of the two guides, a youth named Blatter, quite an athlete in strength and nimbleness, managed, as he rolled down with the avalanche,

CELEBRATED DOGS OF ST. BERNARD SAVING A TRAVELER.

to keep his alpenstock in his hand, and when he came to a dead stop he felt that the point of his stick just protruded from the surface of the snow above him. Working away with what strength remained to him, he succeeded, after some three hours, in extricating himself from the avalanche, but there his powers failed him, and he was only able to call for help across the silent snow. Fortunately his cries reached the Refuge, and its inmate, with a servant of the Hospice, who had stopped at the Refuge on his way to the Hospice with provisions, set out in the

direction of the guide. But they had not walked five minutes when an immense avalanche hurled them to the foot of the mountain. The inmate of the Refuge perished, leaving a young widow and a two-years-old boy.

Wonderful Escape.

The servant of the Hospice, however, escaped; though, when rolling with the avalanche, he thought he would have died every minute from the snow and earth that found its way into his mouth, and was like to choke him. He succeeded in turning on his face, and in so relieving himself, till, the avalanche having stopped, he disengaged himself from the snow, and after severe efforts regained the Refuge in a fainting state about two in the morning. During that terrible night he said the roar of the descending avalanches was deafening.

The passage of these roads in winter is attended with great danger from the accumulation of snow, and the violence of the tempests which burst upon the unwary traveler with appalling suddenness. The following narrative of a lady's winter adventure on the Simplon, will serve to illustrate this, and to show the value of the Refuges constructed at the most perilous points of the route. After describing the earlier portion of her journey, she says: By the time we left the fifth Refuge no doubt could exist as to the alarming state of the weather. It was blowing hard, the cold being bitter and intense; the snow was driving in our faces, and thickening the air so much that hardly anything beyond the immediate road could be discerned. These storms, in Alpine language are called "torments," and truly they deserve the name.

One peculiar feature of them is, that the snow, so called, resembles more a shower of ice, and the flakes or morsels thereof, driving hard and fast into the face and eyes of the unhappy traveler, so blind and stupefy him that, exhausted in the attempt to battle with the icy tempest, he too frequently sinks down in the snow, and, overtaken by an irresistible stupor, miserably perishes.

In Imminent Peril.

The darkness was increasing upon us every instant, and the snow on the road had now become so deep as to hide nearly half the wheels of the carriage, and cause the greatest difficulty in their turning at all. There really seemed nothing to guide or save our struggling horses from overstepping the almost imperceptible boundary that lay between us and total destruction. It was a fearful scene, and one calculated to try the strongest nerves. The danger of our position really seemed frightful. Men and horses were blinded and driven back by the wind and incessant

fall of snow which came direct against them; and though striving hard to get on, they constantly stumbled and fell in the untracked and deep snow.

The horses could only by the greatest exertions be induced to face the gale, or move a step onwards, their labor being of course doubled by the difficulty of forcing the clogged wheels to advance at all. Night, and that, too, a fearful one of storm, was evidently fast approaching. What was to be done? I felt almost in despair, for it seemed to me absolutely impossible that we should this night pass beyond the place where we now were. But at this moment we stopped, and, hearing strange voices, I perceived that two men from the Refuge had joined us: wild figures they were, enveloped in goat-skins; yet I hailed their arrival with joy and gratitude, for I felt sure that help was near.

Timely Arrival at the Refuge.

One soon advanced to me, and, announcing himself as the inspector of Simplon road, and, therefore, of course, the chief of the band of men thereon employed, assured me that, though our situation was certainly alarming, he hoped to be able to get us on to the Hospice, where the monks would instantly admit us, and there he said we must sleep. The inspector and his man being provided with spades of a peculiar kind, preceded us, and by digging and shovelling away the snow in the worst parts, they considerably diminished the difficulties of our progress, which, though the distance is only half a mile between the last Refuge and the Hospice, occupied a very long time.

At last we arrived in front of a large and solid edifice, and stopping opposite to it, the inspector advised us to get out and proceed as well as we could on foot, for that it would be both a tedious and difficult operation in so deep a snow to turn the carriage, and get it into the coach-house of the Hospice. We of course obeyed, as we should have done any directions he gave, and scrambled with great difficulty through the great masses of snow which covered the ground between us and the gate, chilled through and through; we at last arrived at the entrance, just as the great bell rang, and a monk, with several large dogs, came out to welcome and receive us.

After an excellent breakfast, on the following morning, the inspector arrived to consult with us on the possibility of continuing our journey. The monks tried hard to dissuade us from going; but encouraged by the inspector, we decided on making the attempt; and he further promised his own assistance, with that of ten of his men, to get us safe to Simplon. Our cortège was certainly most curious and picturesque; first, our car-

riage on a sledge, drawn by four horses; next, the wheels and baggage on another sledge, which was consigned to three white horses.

Our guards consisted of the inspector and ten men, most wild-looking objects, dressed in goat-skins, and armed with spades and all useful implements. The journey was certainly not performed without considerable misgiving and alarms; the distance from the convent to Simplon, although only three miles, we were above three hours in accomplishing. The snow, where it had drifted on either side of the road, was frequently above the height of the carriage, and every step we advanced seemed to be only accomplished after much scraping and digging on the part of the troop, for of course there was no track whatever.

In some parts the snow was less deep, and the great rocks around us were so thickly covered with a fleecy mantle that no part of their original form was visible, while the tall, heavy fir-trees seemed bowed almost to the ground by the weight on their branches. Enormous icicles of every shape and form, hung pendent from the rocks, and in the already fading light assumed innumerable shades of color. Nothing could be more beautiful, nothing more wildly grand and sublime, than the scene; and, in spite of my fears, I found myself almost absorbed in intense admiration.

CHAPTER VII.

A TRIP THROUGH EASTERN EUROPE.

States Bordering the Adriatic—Inhabitants of the "Black Mountain"—Poor Country—War Considered a Pastime—Rude Hospitality of the Montenegrins—Hunting—Dearth of Soap—Justice Administered Firmly—State Criminals—Marriages and Divorces—The Morlacks—The Wallachians—"Rudolph the Black"—Wallachia a Huge Battle-field—Physical Appearance and Domestic Habits of the Wallachians—Fine Natural Advantages—Quarries of Salt—The Great Family of Slavonians—Where Pure Types are Found—Power of Music—Beautiful Women—Costumes—Military Confines—Shepherds and Guards—Idle Drunkards—Singular Proverbs—Petty Warfare—Constantinople—Famous Mosque—Wonderful Bazaars.

WEST of the Adriatic Sea lies "Sunny Italy;" on the east are several States, more or less free and independent, which present to the traveler many points of interest. The Montenegrins who inhabit the "Black Mountain," and have acquired a seaport at Dulcigno, are prominent in the history of Southeastern Europe. After fierce struggles with the Turks, they have now attained independence, though naturally, owing to their fewness, the people of the Black Mountain are not far advanced in culture, while the poverty of the country precludes anything in the shape of demoralizing wealth. All together, they number 250,000, of whom only a small number live at Cettinje, the primitive capital, the rest being scattered over the little territory, engaged, for the most part, in pastoral and agricultural pursuits. Having had to fight a continuous battle for their liberty, the Montenegrin is a brave, picturesque, but somewhat truculent individual; and though the Turks' skulls, which once on a time were the principal decorations of the capital, have been removed, he is quite capable, when occasion offers, of replacing these national monuments.

There is no standing army. Every Montenegrin is a soldier, ready at an hour's notice to take the field. War is to them a pastime, which is welcomed with zest and pursued to the bitter end. During their latest bout with the Turks an old man of eighty drew a pistol and shot himself dead on the Prince refusing to allow him to march with the troops. Everything is primitive in Cettinje—houses, habits and morals. The

MONTENEGRIN PRIEST IN WAR DRESS BEARING THE CHURCH BANNER.

women are, perhaps, not actually maltreated, but they are regarded as inferior creatures; though, when danger threatens, they display a courage, and, it may be added, patriotic ferocity, not inferior to that of their masters.

The Montenegrin is, however, not a savage in his customs, as some unfriendly critics have asserted. He is humane to the lower animals, and if he was, until lately, in the habit of mutilating his prisoners, he only carried into practice a custom as old as the times of the Odyssey, though it was so repugnant to the feelings of Europe that it has long since been prohibited. In other respects the Montenegrins do not differ widely from their neighbors. They are most polite to strangers and full of rude hospitality. Their women are not nearly so handsome as the men, and owing to the hard work which is their lot among a nation of warriors, fade into premature ugliness at a period when the female of civilization is in her prime.

Fine Hunters but Poor Farmers.

It is, perhaps, unnecessary to add, that they are not very industrious. They are too much of the aristocrat for toiling and moiling. The Montenegrins are the flower of the Slav people, so far as appearance goes, and contrast wonderfully in this respect with the Bulgarians. The one looks a peasant; the other a gentleman. But while the peasant Bulgarian will convert a desert into a garden, the Montenegrin will starve, rather than strain his muscles in any such task. The mountineer has the best of weapons, but the plough with which he scratches his field is the same rude implement which his ancestors used a thousand years ago. It is hard for these people to realize that, for the future, they must live as men of peace, or that a condition of sempiternal warfare is not the condition of freemen.

Education, if general, is not high, and naturally, a people who do not appreciate reading cannot be expected to be great buyers of literature "There are," writes a correspondent, "two newspapers published in Montenegro—one the official journal, and the other a popular medical paper. Sixty copies of the latter are sold in Montenegro. When you read the paper, and find that its articles are on the way to live in health throughout the year, the evil consequences of wearing earrings, the proper treatment of infants, etc., you are surprised, not that so few, but so many copies of such a paper should be bought by Montenegrins.

Absence of Soap and Cleanliness.

It is earnestly to be hoped that the laudations upon soap, which this paper contains, may have some influence on those who read it. We regret

MORLACK MUSICIANS AND DANCERS OF ZARA.

to state that after their baptism the majority of Montenegrins do not often come in contact with water, except when it rains. If any of our readers object to calling an unwashed Montenegrin a gentleman, we can only plead that the Grand Monarque himself rarely washed his hands, and that the religion of soap is quite of recent date, and very English in its cult.

Perhaps the most interesting institution in Cettinje is the tree of justice. Here the Prince sits, and to him come the meanest of his subjects. English law has a maxim—the law does not care for trifles. The present Prince of Montenegro said, "If you suffer injustice to the value of one farthing, and you do not come and complain to me, you are not yourself worth a farthing." Justice is well administered in Montenegro, but all who have, or think they have, suffered wrong, can go direct to the Prince, and the Prince will either decide the case himself or will direct a new trial. Montenegrin law is, however, cheap and speedy, and there are no lawyers in Montenegro. From this patriarchal tree you see on your right the palace of the Prince, and on the left a grassplot, on which several Montenegrins are lazily lounging. These prisoners are the criminals of the State. They are self-guarded. Should any of these prisoners think fit to return to his native village before his term of imprisonment has expired, he can do so, but he will at once be recognized and re-incarcerated. It is extremely rare for them to attempt to escape from the house and grassplot which have been allotted to them by their Prince. Most of these men are homicides, and rarely thieves. There are a few female prisoners, and of these the majority are in prison for murdering their husbands.

Marriages and Divorces.

Marriages for love are a product of civilization. An affair of the heart, culminating in marriage, is almost unknown among Southern Slavs. The parents arrange these matters, and often a maid has not seen her future husband until she meets him at the altar. We will not say positively that these marriages for convenience are the cause of the prevalence of divorce here, but it is a striking fact that during one year there were as many as 200 divorces in this little country.

The fair Montenegrins look every one of them a queen, as they march along the streets of Cettinje, or even when they are toiling with a load of sixty pounds on their back up the steep road from Cattaro. Yet when roused they can be viragoes as well. If they work hard they also exert much influence, and, as in Albania, a young girl, it is said, may travel from one end of the territory to the other in perfect safety, her presence protecting even an enemy from outrage. It is an interesting fact that

among some peoples who are accounted as not more than half civilized, there is an extraordinary respect for woman. This regard is often more

WALLACHIAN PEASANT.

marked among rude tribes than among the refined classes of cultivated society, as may be seen in many parts of Eastern Europe.

The Morlacks are that branch of the Croato-Serbian people who inhabit Dalmatia, one of the Austrian crown-lands. They speak the Slavic form of speech known as Illyric, but this, like the other dialects, local and otherwise, belonging to the Illyrian group, is so little different from Servian, that a traveler knowing any one of them could, without much difficulty, make himself understood throughout the entire country peopled by the other subdivisions of the family. The word Morlacks—which ought properly to be spelled Morlach—is said to mean "sea-Vlachs," or strangers.

The Wallachian Province.

Under the title of Wallachians are comprehended the people of Wallachian Moldavia and some of the neighboring provinces. The Wallachians proceed from the fusion of the Roman colonies, established by Trajan, and of some Greek settlements, with the ancient Slavonic inhabitants of these countries. The language of this people corresponds with their triple origin, for it possesses the characteristics of Latin, Greek, and Slavonic.

The Wallachians, originally subject to the kingdom of Bulgaria and to that of Hungary, formed, in 1290, an independent state, the first prince of which was called "Rudolph the Black." About 1350 one of their colonies occupied Moldavia, under the leadership of a prince named Dragosch. But the Wallachian State was never very firmly constituted, and in 1525 the battle of Mohacz reduced it finally under Turkish rule. The Turks did not disturb the internal government of the Wallachians but obliged their prince to pay an annual tribute to the Porte, and to maintain Turkish garrisons in all their strongholds. But Wallachia, being situated between the Ottoman Empire on one side, and Hungary, Poland, and Russia, on the other, became the scene of most of the struggles between its formidable neighbors. It was trampled over by both Christian and Mussulman, and this terrible situation resulted in ruin and exile to its unfortunate inhabitants. The princes who occupied the thrones of Wallachia and Moldavia were appointed by the court of Constantinople, who sold this dignity to the highest bidder. The princes were then only a species of pasha, or Turkish governor; their court was formed after the pattern of those of the Byzantine emperors, but they did not possess the military power of the Turkish pashas.

This situation has changed since 1849, when a treaty was concluded between the Porte and Russia. By the terms of this treaty, the dignity of prince was maintained during the lifetime of its possessor. New events have happened, and, since the year 1861, by a firman of the Sultan of

Turkey, the name of Roumania has been given to the Danubian Principalities, the political protection of which is shared between Russia, the Porte, Prussia, and Austria.

WALLACHIAN PEASANT GIRL.

The inhabitants of Wallachia are remarkable for patience and resignation; without these qualities it would have fared hard with them during the calamities which have at all times befallen their country. They are men of a mild, religious, and sober temperament. But since they are unable to enjoy the result of their labor, they do as little work as possible. The milk of their kine, pork, a little maize, and beer of an inferior quality, with a woolen dress, is all they require. On fête days, however, the peasants appear in brilliant costumes.

The Wallachians are generally of considerable height, well-made, and robust; they have oblong faces, black hair, thick and well-arched eyebrows, bright eyes, small lips, and white teeth. They are merry, hospi-

table, sober, active, brave, and fitted to make good soldiers. They profess Christianity according to the rites of the Greek Church. The priests or curates are chosen from the body of the common people, from whom it would, as far as appearance goes, be no easy task to distinguish them. When not attending to clerical functions, they follow ordinary trades and employments.

Towns are rare in Wallachia, the country being still far in arrear of the surrounding civilization, in consequence of its political subordination to Turkey, and its bad internal organization The country of the Danube, indeed, has practically but one large town—that is, Bucharest. There are thus, in this land, no centres whence light could emanate; it is in an incomplete state of civilization, which can be improved only by an internal revolution, or by the collision which, sooner or later, must come, of its powerful adjacent empires.

However, nature seems to await human industry with open arms; there are few regions upon which she has lavished her gifts as she has here. The finest river in Europe bathes the southern frontier of these provinces, and opens a way into fertile Hungary and the whole Austrian Empire, offering, moreover, a communication between Europe and Asia by the Black Sea; but this is all in vain, for hardly a single vessel glides over its waves. Its rocks, its shoals, the Turkish garrisons on its banks, and, above all, the plague, inspire fear. Other fine rivers flow from the summit of the Carpathian mountains, and fall into the Danube; but they serve only to supply fish during Lent, and, being left to themselves, menace the surrounding country, which, if better regulated, they would fertilize.

Stately Forests and Rich Mines.

Immense marshes encumber the low parts of Wallachia, and their exhalations produce a continuance of bilious fevers. The most superb forests, in which the splendid oaks grow side by side with beeches, pines and firs, cover not only the mountains, but many of the large islands in the Danube. These, instead of being used in the construction of fleets, merely furnish the wood used in paving the streets or roads; for idleness and ignorance find no means of raising the blocks of granite and marble, of which the Carpathians offer such abundance. The summit of Mount Boutchez attains a height of more than six thousand feet, and all the mineral wealth of Transylvania seems to take its origin in Upper Wallachia. Copper mines have been opened at Baya di Roma, and iron mines in the district of Gersy, where a bed of rocks presents the phenomenon of an almost continual fiery fermentation.

The Aluta and other rivers bring down nuggets of gold, which are

collected by the Bohemians, and which indicate the presence of mines as rich as those of Transylvania; but no one thinks of looking for them. Only the salt quarries are worked. The climate, notwithstanding two months of hard winter and two months of excessive heat, is more favorable to health and agriculture than that of any of the adjacent countries. The pastures, filled with aromatic plants, supply nourishment even to the herds of neighboring provinces, and could support even more than these.

SLAVONIAN TEAMSTER.

The wool of their sheep has already attained considerable value. It is estimated that Wallachia contains two and a half millions of sheep, which are of threefold variety—one, with a short and fine wool; another with long coarse wool; and a third, which forms a mean between the two foregoing varieties. Horses and oxen are exported. Fields of maize, wheat and barley; forests of apple, plum and cherry trees; melons and cabbages, excellent, although enormous, bear witness to the productive nature of the soil. Many of its wines sparkle with a generous fire, and with care might be brought to equal the well-known Hungarian vintages. A thousand other natural advantages are found there, but they are of little avail to a people without energy or enlightenment.

The Slavonian family comprehends the Russians, Finns, Bulgarians, Servians, and Bosniaks, that is to say, the inhabitants of Slavonia; and the Magyars, or Hungarians, the Croats, the Tchecks, the Poles, and the Lithuanians, that is, the people who inhabit the countries intervening between the Baltic and Black Seas. The Slavonians occupy a large portion of Eastern Europe; formerly they had advanced as far as the centre of Germany. The purest type

of the Slavonian race is to be found in the Servians, inhabitants of Servia, Herzegovina, and Hungarian Slavonia. The Bosniaks and Montenegrins are also Slavonians.

The Northern Slavonian is, in general, gentle and patient. His sweet-toned language caresses the ear and the mind with expressions full of tenderness. He treats his wife and children with the greatest kindness. Like the Arab, he loves a life of wandering and adventure beneath the open sky, and, like the Arab, he can bear the greatest fatigue. On horseback he crosses plains covered with snow, as the Arab crosses the burning sands of the desert. Music has a very moving effect on the Slavonian. It forms a means of translating his tenderness and his melancholy; it responds to the vague and cloudy impressions, to the yearnings of his swelling heart. The Slavonian peasants cultivate the voice, and men, rough and coarse in many other respects, compose melodies full of sentiment. The auditors press around the singer, like the shepherds of ancient Arcadia, and tears of emotion and pleasure are seen rolling down the unkempt beards of these poor Danubians.

Blonde Men and Handsome Women.

M. George Perrot thus describes the peasants of these parts: The majority of the men around us have hair which is blonde, or of different shades of chestnut. Although much burnt by the sun, they are not generally so dark as the Magyars. Many of the women, who are tall and slender, are really beautiful. Their eyes especially, which are bright and sparkling, and sometimes blue, though more frequently of a dark gray, are charming. The lower portion of their face is less agreeable; the chin is usually prominent, and the lips are rather thick.

Their costume recalls that met with in the East. The men wear a slouch hat of black felt with the edges turned up, a linen shirt, and full trousers down to the ankle; this in hot weather, when they are in working order, forms the whole dress. One or two loungers, who joined us, were more completely dressed than this.

They wore large boots of thick leather, and over the shirt a waistcoat of blue cloth, adorned in front, with white metal buttons, and behind with embroidery in yellow or white. On another occasion, when we were on the boat, we saw some men who, in addition to this, wore over the waistcoat a short cape or half-cloak, which did not fall lower than the waist, and of which, as a rule, the sleeves were allowed to hang loose. In winter, they add to these warm robes of sheepskin, or large mantles.

As to the women, they make me think of the Albanians of Attica. This fine September afternoon, they are wearing a long chemise, embroid-

SHEPHERD OF THE MILITARY CONFINES.

ered with eyelet holes and colored patterns; this chemise, which leaves the neck very open, would reach to the ground, but in order to admit of freer movement in the fields or at home, it is hitched up, and supported by a colored girdle, wound two or three times round the body; being thus held up, the chemise forms elegant and symmetrical folds, falling in

TYPES OF SLAVONIAN WOMEN.

front as low as the ankle, while behind it extends to about half way down the calf of the leg.

Over the head is thrown, in various fashions, a kerchief, which is usually white, but which on festive occasions is embroidered with silver and gold;

the ends of this fall down the back, or over the bosom, as may suit the taste of the wearer. When the best dress is donned, a cloth apron, the color and pattern of which bear a resemblance to the carpets which I have met with in Servia and Bosnia, hangs down to the knees. Over the chemise is worn a species of waistcoat without sleeves, and ornamented with gold or silver embroidery. In winter, they guard against the cold by wearing over all a thick overcoat of sheepskin. All the garments worn by the women are worked by their own hands and busy fingers, during the long winter evenings.

DANUBIAN LADY.

M. George Perrot remained for rather a long period in the provinces now called the Military Confines or Frontiers, and he describes the miserable state in which the Slavonian peasantry exist there, where they are obliged to live side by side with wild hordes of Mussulman soldiers or pandours.

Let us quote a few more of this traveler's impressions: What struck me in all the villages of the Confines through which I passed were the guard-stations, before which loitered, or slept beside their guns, suspended on the wall, five or six "gränzers." In summer they wear merely their trousers and shirt of coarse white cloth, and sometimes a sort of brown jacket with red facings, which they also wear for field work. In winter they are seen enveloped in their large hooded cloaks of red cloth; and, thus equipped and armed, guard their flocks on the moors. The state furnishes them, for exercise and service, with guns similar to those used by regiments of the line; but when not on duty many of them prefer long guns of Albanian manufacture or shape, with swallow-tailed stocks. These guns are transmitted from father to son for several generations.

Besides these, they wear in their girdles one or two pistols, and a kind of dagger with a bone handle inlaid with coral or glass. In this guise they do not have much of the appearance of civilized subjects of His Majesty Francis Joseph, constitutional Emperor of Austria and King of Hungary. Their uniform, consisting of a blue trouser fitting close to the leg, and a vest of black or white wool, is only produced on field days or in war.

But what is it that these sentinels are guarding? This is just what I have never been able to understand. No enemy, from Belgrade to Sissek, was threatening, and these villages are exposed to no more disorder than those of the neighboring provinces, where they dispense with all this armed exhibition. This, therefore, is another of the useless and erroneous consequences of the military *régime*. Here are hands taken day after day from their labor in the fields, and with no greater advantage than that of acquiring the habits of idleness and drunkenness, usually contracted during the period of barrack-room inactivity.

They have maxims which accurately indicate their character: "Go late to the field and return early so as to avoid the dew; if God does not aid,

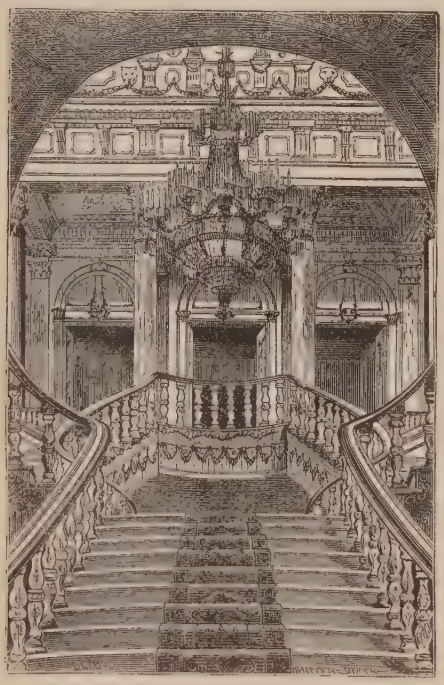
MOSQUE OF ST. SOPHIA—CONSTANTINOPLE.

what is the use of working?" Being accustomed to rely only, as they say, "upon God and the Emperor," they refuse to recognize the advantages to be gained from any modern invention, better tools, or more advanced methods of cultivation. "Thus I found it, and thus I will leave it," is a saying of which they often make use in speaking of their patrimonial domain.

The only thing which, in spite of all the shackles which enchain and benumb their limbs, would have been able to arouse their mind and impart to them some desire for progress, is instruction. But ignorance is profound in the Military Confines; the regimental schools that exist are very insufficient both in number and quality; in certain districts, especially in Southern Croatia, the villages are so distant from one another,

that the children who do not dwell in the borough where the school is, are unable, without difficulty, to go there at any time. Besides, why should the government do much as regards instruction? It is clear that, if the people of the Confines were better taught, they would be less resigned to their hard lot. If it rested entirely with the government, the schoolmaster would be entirely banished from these parts.

Upon the banks of the Danube and of the Save, where the Confines abut upon the river, which is continually traversed by packet-boats, travelers and merchandise, the people of the frontiers have nevertheless daily cummunication with the inhabitants of the neighboring provinces, and even with strangers. This contact somewhat opens their minds and suggests new ideas; but it is chiefly in Southern Croatia, that the characteristic features of the gränzer are most frequent and striking. There commences, south-east of Karlstadt, what is termed the "dry frontier;" this is no longer a water-course, such as the Danube or Save, but a line purely conventional, forming the boundary between Austria and Turkey.



MARBLE STAIRCASE IN THE SULTAN'S PALACE.

Surprises and hand to hand combats were recently matters of frequent occurrence upon this frontier, which is more difficult to define and to preserve. At the commencement of this century certain forts, and other places, such as Zettin, which the Turks assaulted in 1809 and 1813, were still the subject of dispute. Cases of armed brigandage and assassinations, which were very common in the whole of this country, are now becoming rarer; but theft is the crime which requires most frequent punishment. The ancestors of the gränzers lived chiefly by plunder, and such habits are not removed in a day.

No city in south-eastern Europe outranks Constantinople. It has a beautiful situation, is possessed of fine buildings, great wealth and attrac-

tive residences, and has enough of antiquity to interest the scholar and historian. Its religious edifices are justly celebrated.

The Mosque of St. Sophia was originally a Christian church, erected in honor of the Divine Wisdom. It was built by the Emperor Justinian, between the years 531 and 538. It is in the form of a Greek cross, 270 feet long by 243 feet wide, and is surmounted by a central dome which rises 180 feet above the floor. The building has, also, two larger and six smaller semi-domes, and four tall minarets, the latter added by the Mohammedans. From without, the edifice presents a magnificent appearance.

The interior is very handsome, but the effect is marred by the numerous cords which hang from the ceiling to within five feet of the floor, suspending lamps of colored glass, ostrich eggs, artificial horse tails, and other ornaments admired by the faithful. The roof rests upon one hundred and seventy columns of marble, granite, and porphyry, many of which were taken from Roman temples. The church, though undoubtedly one of the grandest religious edifices in the world, has a gloomy and forbidding aspect.

The Mosques of Suleiman, the Magnificent; of Sultan Achmed, and of Mohammed II., are noted edifices. The first named is the most beautiful in Constantinople.

The Bazaars of Constantinople are among its chief attractions. These consist of large fireproof buildings lighted from above, in which hundreds of tradesmen and shopkeepers retail their wares, and some of which enclose several covered streets. Here are displayed in the greatest profusion all the wares known to the commerce of the East. They are more extensive than those of Damascus and constitute almost a city within a city.

ODESSA, THE PRINCIPAL PORT OF RUSSIA ON THE BLACK SEA.

CHAPTER VIII.

PICTURES OF TRAVEL IN RUSSIA.

How the Russians Look—Peculiar Styles of Dress—White Cap and Shapeless Great Coat—Fur Garments in Dog Days—Flowing Beards—National Peculiarities of Character—Trusting in God, Chance and the Czar—Anarchists more Noisy than Numerous—Absence of Comfort in Russian Hotels—Universal Use of Tobacco—The Czar's Absolute Sway—Peasants Ignorant and Loyal—Immense Army and Navy—Fine Old Moscow—Famous Kremlin—Domestic Life and Customs—Houses and Villages—Scant Household Furniture—Simple Food—Summer Dress of Peasants—Agricultural Pursuits—Hunting—Amusements and Drunkenness—Russian Nobility—Droll Mixtures in Russian Character—Servants who Serve You Faithfully and Steal Your Money—Lying to Get a Glass of Whisky—The Crimea—Appearance of Sebastopol to-day—Traces of the Great Siege—The Samoyedes—Wanderers on the Shores of the Arctic Ocean—Remarkable Costumes—Sledges and Tents—People of the Eastern Caucasus—Moslem Fanatics—Great Variety of Dialects—Clean Houses and Shabby Clothes.

THE Russians, possessing certain characteristics in common, are a sufficiently varied class, as any one must admit who has ever watched the company at one of the great fairs, or who has looked for an hour at the people passing along the streets of Moscow or St. Petersburg. Their dress is in no way sumptuous, or even picturesque, but it is, notwithstanding, strikingly peculiar. Fifty or sixty years ago it might have impressed the visitor as still stranger, for at that period Bokharans and Persians in silken costume, Chinese in pigtails, and even Ostiaks and Samoyedes in fur, might have been seen among the crowd frequenting the busier parts of many of the now very European-like cities of Russia.

Farther east, some of these folk are still common enough sights; but even the Tartars, Armenians, and Persians are prone to sink their distinctive costumes, compromising with their conscience and their convenience by wearing merely the head-dress of their native lands. Nowadays, everything is more or less Frankish. Yet even in these degenerate times there is much that is interesting from the visitor's point of view in these by-ways of the West. The "chimney-pot" hat is seldom seen, even on the heads of the more fashionable people, while the humbler folk still cling to what may be considered the national garb. This consists of a black or white cap, with the brim drawn down on the brow, and almost

on the very eyes; a long, loose, shapeless, dark blue or brown great-coat, flowing down to the heels, and heavy top-boots up to the knees.

In the case of well-to-do peasants, fresh from the country, you may catch here and there, between the folds of the great-coat, a sight of the red blouse or of the broad red sash and black velvet breeches which were once popular in rural districts. But as a rule the dark, long gabardine hides everything, and, bating the color or tissue, the same medley of international rags seems equally to suit Russian or Tartar, Moslem or

ALEXANDER II.—ASSASSINATED BY A DYNAMITE BOMB, MARCH 13, 1881.

Christian, Gypsy or Jew, merchant or broker; and idlers of the middle classes wear the cutaway jacket and wideawake hat common to all Europe. Gentlemen of the higher ranks appear either in military or civilian uniform, and they also throw over it the heavy riding cloak, regardless of the stifling heat; for, indeed, nothing is more common than to see rich and poor, old and young, cumbered with large fur coats and caps throughout the dog days.

The hairiness of the Russian has often been noticed. The lower

classes, and even the merchants who do not ape fashionable manners, all wear the full, flowing beard, and many of them allow their hair to grow so long that it looks like a mane down their backs, though most of them wear it clipped straight round by a barber, who, when a customer goes to him for his half-yearly shearing, claps an iron top on the head and then snips off the refractory locks which protrude beyond its rim. The humbler order of Russians do not, however, spend much time over their hair. The thatch on the head looks like a mat, and the beard and whiskers are generally dishevelled and tangled, though, it ought to be added, this frame is in excellent keeping with a face that may not have seen soap for several weeks on a stretch.

Amid this crowd walk with stately mien the priests of the Greek Church, whose hair or beard, like those of the laity, are uncut, but carefully combed and smoothed. These men are frequently tall and handsome, and the air of composure with which they go about their duties imparts to them a dignity which is not lessened by the official robes, without which they never stir abroad. The monks, or "black clergy," wear flowing gowns and tall cylindrical hats, from which veils fall down, partly covering their faces. The parish priests—or white clergy—are dressed very much the same, but wear no veils. These ministers of the national faith are almost invariably married.

Peculiarities of Character.

It is less easy to describe the Russian character than the Russian dress, for a people numbering so many millions must, of course, have many different characteristics. Yet, owing perhaps to the common faith which the vast majority of them profess, and the great homogeneity of the country, added to the fact that the Western world has as yet had little influence in Russia outside of the towns, there are many traits which may be described as peculiar to the Russian. Much of his disposition is due to the influence of accidental circumstances, and of a too precipitate process of civilization. His cunning, superficiality, indolence, instability, intemperance and prodigality, may be reckoned among these untoward effects of outside influences; they are faults not instilled in him by nature.

Take him all in all, the Russian is a good, simple-minded person, of quiet disposition, trusting in God, Chance, and the Czar, and of the most placid resignation, no matter what fate Providence may have in store for him. It is only when he becomes familiar with the ways of towns, or learns, as a Government official, that the easiest way to make money is to rob the State which employs him, that the typical Russian falls from the standard of virtue which we have indicated. Nobility of character is

in few countries confined to any one class: the wicked peer and the unworldly peasant are the special "properties" of the stage.

Yet in Russia it is, as in Spain and Turkey, almost fatal to the morals of a poor man to grow rich, or to rise in the world, for the excellent temper, great kindness of heart, natural candor, and loyalty of disposition too often diminish in a direct ratio to his elevation in the social scale. A

ARCHIMANDRITE OF A RUSSIAN CONVENT.

certain patriarchal spirit is noted as pervading the thoughts and acts of the Russians, and the observer is struck by the singular facility with which he is impressed by exterior influences and events. There is no more superficially pious man than the typical Russian. Ardently devoted to his religion and to his country, he considers the Czar to be the supreme representative of both.

It is indeed questionable whether many of the more primitive peasants

do not regard their sovereign as the only lawful monarch on earth; and in spite of the plots of Nihilists, and other malcontents—which form an almost infinitesimal portion of the population—the great body of the Russians are attached, with an inviolable fidelity, to the throne, the church and to their ancient customs, be they good or bad, and will never dream of disobeying the orders of the Emperor or his officers. The American who roams about Europe is sure, sooner or later, to fall in with the traveled Russians. More agreeable people do not exist. They speak all languages with equal facility, are at home in any society, and seem, from the ease with which they conduct themselves in the midst of surroundings, which are so different from those in Russia, to be the true citizens of the world.

No Bedding but Plenty of Tobacco.

Yet it would be a cardinal error to take these people as the types of their nation. They are little better than foreigners. At home, the hotels are without baths, and almost without water. There is plenty to eat and drink, but the traveler must carry his bedding along with him. In Russian hotels—we do not speak of the French or German establishments in the large towns—there are neither books nor newspapers, except Russian ones, and what are called "reading-rooms," are generally used by billiard players and smokers. The use of tobacco is universal in Russia. Both sexes use it. No public and hardly any private dining or drawing-room is free from it. Ladies in traveling will calmly pull out a little cigarette case, and have no scruple in asking a light from the first male stranger they meet. At the bookstalls at the Russian railway stations, the only books of any consequence are in the Russian tongue, and it is a profound mistake, from which the traveler soon recovers, to imagine that even in the best hotels, and in the streets of the larger cities, it is possible to get along comfortably without the use of Russ. The names of the streets, the inscriptions over the shops, the notice-boards on the railway carriages and waiting-rooms, the bills of fare at the restaurants, are usually in Russian, and in Russian characters.

The Czar's Vast Power.

Of the Government of Russia it is almost needless to say more than that it is an Empire, the head of which is the Czar, who exercises absolute sway over the millions who own him as their temporal and spiritual head. In directing the affairs of this vast Empire the Czar is assisted by four great councils, who superintend the various departments, but whose power emanates solely from the head of the State, and can be exercised solely through him. The Government of Poland is now merged in that

THE RUSSIAN FLEET UNDER FULL SAIL.

of Russia, but Finland enjoys a separate and more liberal organization, under a Governor and a Senate partly nominated and partly elected by the people at large.

Since the days of Nicholas, when everything in the shape of reform stagnated the Empire has greatly advanced. Law-courts have been established in all parts of the Empire, and if the officials are notoriously corrupt and lax, this is mainly owing to the people themselves being wanting in foresight, firmness, energy or that appreciation of the gifts vouchsafed them, which would speedily force the inefficient officials into a better train of work. Russia is an immense military power. At

COSSACKS AT RIFLE PRACTICE.

present, the army—regular and irregular—amounts to 973,135 men in time of peace, and 2,618,312 in time of war. The navy is composed of 389 vessels of every description. This force, however, shows better on paper than in reality, though, since the death of Alexander II. there have been immediate efforts made to render it more efficient.

Few nations in Europe are stronger than Russia. The towns, even were they all discontented and Nihilistic, are few, while the vast array of peasants—63,000,000 in number—are thoroughly loyal, and, being extremely ignorant, are not likely for long to be anything else. These people make up the great mass of the army.

Moscow is the ancient capital of the Russian Empire. It claims a

THE CELEBRATED KREMLIN—MOSCOW.

population of 800,000 inhabitants. It lies on both sides of the Moskva river, is circular in form, and covers a large area of ground. It is in appearance half European, half Asiatic, and this gives to it a grotesque aspect in spite of its magnificence. It is enclosed with walls, the streets are wide and long, and are in some instances paved.

Immense Collection of Magnificent Buildings.

The principal object of interest in Moscow is the Kremlin or citadel. It is two miles in circuit, and is a city in itself. It was the only part of old Moscow that escaped the conflagration at the time of the French occupation in 1812, and the injuries it suffered then have been entirely repaired. It is crowded with palaces, churches, monasteries, arsenals, museums, and buildings of almost every imaginable kind, in which the Tartar style of architecture, with gilded domes and cupolas, generally predominates. There are towers of every form—round, square, and with pointed roofs; belfries, donjons, turrets, spires, sentry-boxes fixed upon minarets, domes, watch-towers, walls pierced with loop-holes, ramparts, fortifications of every species; whimsical devices, incomprehensible inventions, and steeples of every height, style and color, the whole forming a most agreeable picture to look on from the distance.

The Kremlin contains about everything in Moscow of historical interest, as well as the principal sights of the city. The Imperial Palace is a large and handsome edifice. Its internal decorations are beautiful, and it contains one of the finest suites of State apartments in Europe. The Treasury of the Palace contains an extensive collection of historical relics of the earlier Russian sovereigns.

Domestic Life in Russia.

It is in the interior, and away from towns, that the Russian is seen at his worst physically, and at his best morally. In the far North, along the shores of the White Sea, for example, he has to contend with a soil almost incapable of growing anything, and a climate, which for the best part of the year is simply Arctic. And the habits of the people are in keeping with the untoward lot to which they are fated. All kinds of filth are thrown out into what passes for a street, until, just as the dunghill is beginning to breed pestilence, the kindly snow comes and covers all with its antiseptic mantle, and then, when the freshet arrives in the summer, the street or declivity is swept clean by the floods of melted ice.

But a Russian village must be poor in which there is not some attempt at ornamentation. There are always several crosses, often elaborately carved, and covered with deeply cut inscriptions, or decorated with gay incongruous colors. The majority of the houses are built with their

THE CELEBRATED CATHEDRAL OF ST. BASIL.

gable ends to the street, and in the centre of the gable there is usually a window opening on a balcony which, like the framework of the window, the ends of the rain-gutters, and the ends of the ridge of the roof, is often elaborately carved and fretted, and sometimes painted in gaudy hues. In nearly all of the villages of the North there is a conspicuous arrangement of railings for the drying of flax, hay, or corn. In the station-houses at which the traveler changes horses, the men, and sometimes the women—who in Russia do the hardest share of the work—are engaged in spinning flax, making nets, or weaving coarse linen; and in the station, besides the universal "samovar," or tea urn, there is often a draught-board of a very rude construction, evidently destined to while away the long winter evenings.

CONVENIENT DRINKING FOUNTAIN.

Farther south, however, on the great estates of the nobility, the people are somewhat better situated, if in the midst of an agricultural country, where land predominates, and rocks and timber are in their proper places. Such a typical village, or at least community, has been described by Dr. Lansdell. Here—away from the region of forests—the houses were exactly of two rooms, and built of willow, the outer bark of the tree being used for roofing, and the inner bark for matting and ropes. The interior was furnished only scantily. Twenty in the home village might possess a bed, and but nine of them a bed and a bedstead too. It was common, however, for a family to possess a cow, one or more horses, and three or four sheep. The food of the peasants was extremely simple, consisting of rye bread, soup of cabbage and fat; soaked and boiled buckwheat, eaten with hempseed oil; mushrooms, curds, and onions. For drink they consumed small beer made from rye bread, and here and there tea, though this latter has not yet become general among them. The clothing of the peasantry was in keeping with their food. A man's summer suit consists of a cotton shirt, a pair of linen trousers, and shoes of lime-tree bark, the last costing ten cents per pair. If a peasant aspires to high boots they cost him three dollars and a half, and he pays about the same price for his home-spun coat.

RUSSIAN VILLAGE OF LOG-HOUSES.

The nearest market being four miles distant, the people are thrown very much on their own resources: doing their own weaving, and dyeing their linen blue. The population, as will be supposed, was largely agricultural, and many families were increasing their scanty income by agriculture, there being from 200 to 300 hives placed in the surrounding woods, paying a due upon each of from five to eight cents per hive. Many of the peasants, in addition to tilling their own land, worked for their former proprietor, but others leave the place in the summer to seek employment as bargemen on the Russian rivers. In winter they make a little by hunting. The skin of the fox sells for seventy-five cents, and for a wolf's head the Government gives a dollar and a half, the same price, it may be observed, as they pay the Siberian natives for the capture of a runaway convict.

Marrying Young to Get a Servant.

"I found the people," so this excellent observer tells us, "not much given to amusement. 'Tip-cat' and 'pitch-and-toss' are in vogue among the men, knucklebones among the children, and the girls join hands in a ring and sing with or without the accompaniment of the accordion—the only musical instrument within their reach. There was a certain amount of drunkenness among the people, but the number of illegitimate births was said to be not great. Most of the people marry, and do so when young, the moving cause thereto being that when more help is required in a family with sons, it is suggested that one of them should take a wife, who, accordingly, is chosen by the son or mother, not so much with an eye to a pretty face at sweet seventeen—though that is a common age for the girls to marry—as to a pair of strong and brawny arms that shall do good service in the father's household. Here the young couple are expected to live, under patriarchal rule, the master of the house buying what is needful, and the mistress and her daughters adapting it for use.

The gentry differ widely—from the polished dignitary, whose manners are French, and who visits his estate for only a few weeks in the year, to the rough, homely squire who never goes near St. Petersburg, and passes his whole life within a few miles of the place where he was born. With this class, however, the foreign traveler is not apt to come much in contact. He is more apt to meet with the proprietor who lives in an Elizabethan mansion, full of Italian paintings, and bric-a-brac, the spoil of many Continental tours, in which there is an English governess and a German tutor, where any language except Russian may be spoken, and the manners of the inmates of which are not very different from those of a well-bred family in any part of Europe or America.

The Russian character is thus a strange mixture. Charitable to a fault, the people are full of the strangest of superstitions, and while sub-

RUSSIAN PILOT OF THE NORTH SEA.

scribing freely for the erection of hospitals at home, and the freedom of oppressed Christians in Turkey, will connive at the plunder of the tax-payers by the Government officials. These rascals rob everyone with the

utmost impartiality—the Emperor, the people and their fellow officials, and are never backward at helping the rich to plunder the poor.

Sometimes a reasonably honest official arrives in a district, but he does not long remain, for the rich residents of the neighborhood, finding that they cannot blind him with money, or buy his judgment, manage by various combinations to secure his removal, so that they may not be incommoded in their own little schemes for growing rich by unfair means. When the people have recovered from the vices of serfdom a sounder public opinion will arise, and when this is the case the officials will find it no more safe or profitable to put their hands in the treasury than public employés do in other countries better situated.

"Jack at all Trades."

The Russian, however—we must separate the people from the ruling class, and the double-dealings with which they are associated—is certain to be better liked the longer he is known. He is a child, with a child's faults, and many of a child's virtues. A Russian servant may pilfer, but he is faithful beyond the fidelity of the hireling. He never tires in your service. If he has worked for you all day he will work for you all night if required. Nothing is too difficult for him to attempt. He is your right-hand man in every case of need. He can mend your carriage or your harness, and repair your clothes or your boots.

Give him a good axe, and there is no joiner or carpenter's work which he cannot do; nay, if need be, he can build you a new house almost single-handed. He can shoot your game, kill and cut up an ox, or do any plain cooking you may require. He is the soul of punctuality, and if you order him to wake you at four o'clock in the morning, you may sleep soundly to the last moment, in the full confidence that at five minutes past that hour it will be your own fault if you have not made considerable progress with your toilet. He is honest if you trust him, but for all that, to earn a glass of whisky he will lie without shame, and commit a petty theft without remorse.

The Far-Famed Crimea.

The most important point in southern Russia is the Crimea, on the Black Sea. Here occurred the celebrated siege of Sebastopol, when the allied powers by heroic struggles opposed the aggressions of Russia, and checked her grasping spirit The battle of the Alma, and the charge of Balaklava, in 1854, are well-known historic events, the latter giving rise to one of Tennyson's most spirited productions, commemorating the bravery of the allied forces, when

"Into the jaws of death rode the six hundred."

MERRY FESTIVAL IN A RUSSIAN VILLAGE.

A traveler, who has recently visited that locality presents us with a graphic description of the place: I steamed into the roadstead of Sebastopol early one lovely morning in the month of June. We had started from Odessa the previous afternoon, and my first sight of land was when I came on deck in the harbor of Eupatoria. I made out dimly through the morning mist the scene of the disembarkation of the Allies, and farther on the mouth of the Alma.

Scene of A Famous Battle.

A little farther and Sebastopol itself came in view, unmistakably Russian in its aspect. The first sight of the town is striking; and as you round the great shoal which stretches out below the massive casemates of Fort Constantine, you scarcely realize that the glory of the place is departed. But a little further thought and you are conscious of the ruin that has fallen on the place. The great roadstead, stretching far away till it loses itself among the heights of Inkerman, is silent and deserted.

As you turn to the right into the harbor, strictly so called, instead of a crowd of merchant vessels lying at anchor, you see only two English steamers being repaired upon the slips. The landing-place itself seems to sum up the history of the town. A fine, broad flight of steps leading down to the water's edge, surmounted by a Doric colonnade, with the date 1846, marks the era of hope and growth; whilst the pillars themselves, scarred here and there with shot, and contrasting strangely with the mean, ruinous buildings about them mark the downfall of the hopes and the cessation of the growth.

A Picture of Desolation.

Sebastopol, indeed, is only just beginning to emerge from the despondency of the last thirty years. The docks are still a wilderness, overgrown with grass and weeds, with old guns and anchors embedded in the earth, showing that the work of destruction was well carried out by the Allies. In many places you may pass through streets silent and desolate as the streets of Pompeii; houses shattered partly by bombardment, partly by the destruction wrought by the Russians when abandoning the place, principally perhaps by the want of firewood felt by the Allies during the occupation of the winter of 1855-56.

There are, however, not wanting signs of life and improvement. The old barracks at the head of the harbor, between that and Drydock Creek, still stand up against the sky-line, a ghastly row of empty windows and roofless walls four stories high; but there are new barracks farther north, between the old docks and the roadstead, where a large garrison is now accommodated. A railway station is now open at the head of the har

bor, from which you can go direct in three days and two nights to Moscow. Fresh houses have been built during the last two years, and more are building. Churches are springing up again with all the glittering ornament that marks the Russian style of architecture.

SEBASTOPOL DURING THE BOMBARDMENT IN THE CRIMEAN WAR.

Once established in Sebastopol, the only difficulty is the means of locomotion. The heat and the dust in the summer months make walking almost out of the question; horses are very difficult to find, and of in-

ferior quality when found; while carriages deprive you of your freedom of action, and hand you over to a coachman anxious only to hurry you over the regular route as quickly as possible, and deaf to your remonstrances in an unknown tongue.

Your bargain once settled with one of these, you may start along the high slope overhanging the harbor, descend into the ravine at its head, once known as the "Valley of the Shadow of Death," and then, taking the road past the docks along the other side of the harbor, pass out by the route taken by General Soimonoff on the morning of Inkerman. Then, if you are fortunate enough to have the last volume of Kinglake with you, you may wander for hours amongst the spurs and hollows which run down from the heights to the roadstead, and the valley of the Tchernaya; and tales which at home perhaps seem long and tedious become instinct with fire and life when studied upon the spot. Or, stopping short of this, you may turn up the steep path which leads to the Malakoff, where the remains of the so-called Yellow Tower still form a prominent feature in the scene.

Point of the Final Assault.

Here, directly in front of you, is the little green hill of the Mamelon, the last stage in the French advance before the decisive assault. To your right, on the farther side of the ravine, lie the remains of the Redan, and in front of it, but at some distance, the siege works of the English.

But to an Englishman far from home, the graves of his countrymen in a foreign land will be almost more interesting than the ruined works for the possession of which they fought and fell. Stretching in a long irregular line across the plateau from Inkerman to Balaklava, these little walled enclosures meet you at intervals, some with handsome tombstones and crosses and inscriptions, some discernible only by the little mounds and hillocks which mark the resting-place of unknown privates. Yet, melancholy as are these records of actual death in battle, they were not so melancholy to my mind as the English cemetery at Suctari, with its tale of long protracted disease and suffering. This, though the largest, is but one amongst a group of cemeteries, and there are, all together, no less than ten groups.

A Remarkable Race of People.

The Samoyedes (pronounced Samo-yeds) are wanderers along the shores of the Arctic Ocean, and along the dreary wastes which cover so much of the inhospitable regions of the North. They are both a European and an Asiatic people, extending eastward as far as the Tazz, and are divided into tribelets, to which different names are applied by the

SAMOYEDE, IN WINTER DRESS, TRAVELING ON SNOW-SHOES.

Russians, if not by themselves. In Europe they do not live much farther east than Mezen, on the White Sea. At Mezen the traveler sees the first Samoyedes—drunken, brandy-loving, who hang about the little town begging, trading, and stealing, if they get a chance, spite of prison-house and knout. Castren, an enthusiastic traveler, to whose self-denying exertions we are indebted for so much of our knowledge of the Northern nomads, could obtain at Mezen no Samoyede interpreter unless he paid him in brandy. Only one man could be vouched for as being of a sober character. He had to be sent for from a distance, and when he arrived he was as drunk as the others.

The Kânin peninsula is the chief stronghold of the Samoyedes of this district; in the winter, however, they desert the peninsula, and come about the town of Mezen, drinking and idling about as usual. The latest travelers who have visited them were Messrs. Rae and Brandreth; and to the former gentleman's genial sketch of the people with whom he came in contact in the region in question, we are indebted for the greater part of what follows. Their brandy-loving reputation Mr. Rae confirms. Even the mere children, if offered it, will take the share of drink as readily as the grown-up topers. The first he met were the idlers, in the vicinity of Mezen, who have no reindeer, and no fixed employment, and who live on charity, or on their richer neighbors who come in the winter from other places.

Curious Use for a Drum.

They have no knowledge of books, no written language or tradition, and hardly any real religion, their acquaintance with even the forms of the Greek Church being of the scantiest description; nor is any systematic effort made by the Russians to introduce civilization and Christian culture amongst them. Their mode of approaching the Deity is not unlike that of the pagan Lapps, namely, with a drum; they also use divining instruments to interpret fate.

The Samoyede is faithful in friendship, capable of no serious crime, honest except under great provocation, and will not beg, unless for vodka, or brandy; though, indeed, if what Castren tells us be true, they set their women to perform that task for them. "Give me," begged a Samoyede of Castren, "another cup of vodka." "What good hast thou done me that I should give thee vodka?" said Castren. "Thou art traveling with my reindeer," was the rejoinder. "But I pay thee for them," said Castren. "I have given thee good reindeer," urged the Samoyede. "But thy son drives badly," said Castren. "Then don't give him any vodka," was the paternal recommendation of the somewhat illogical Samoyede. About

Christmas these Kânin Samoyedes drive into the neighborhood of Mezen to dispose of their reindeer skins and wild fowl, and to provide themselves with meal, butter, sour milk, powder, shot, vodka, and other articles. After Christmas they again return to the sea; only a few of the poorest of them go to towns where the men employ themselves as drivers, and the women as beggars.

The dresses of the men are, first, a tunic of reindeer skin, reaching half way to the knee, with the fur inside, the seams being ornamented generally

FINLANDER'S HUT AND REINDEER.

with a line of red, or double line, perhaps, of red and blue. Over this is worn, in the summer, for cleanliness' sake and protection, a covering of similar form in red or blue striped linen. The dress is often beautifully ornamented. They have loose boots, generally of white reindeer skin, with the fur outward, reaching above the knee, and decorated with stripes black, brown or gray fur, and often a little cloth. Under them, in winter, are worn half-boots, with the fur inward. The outer garment is identical with the Lapiander's fur cape, and like it, is decorated with gayly-colored

cloth, often red, black or yellow. A band hangs on either side, ornamented with patchwork fur patterns; these are usually attached to one another behind the shoulder, falling over the back, and reaching to the waist.

In the winter, a second tunic is worn. To the cuffs are attached gloves. The women's dress is much gayer, though scarcely so handsome. The tunic is closer to the figure above the waist, and hangs in a sort of skirt to half way below the knees. The body is a masterpiece of beautiful fur ornamentation, the various shades and colors being introduced in patchwork with great taste. The skirt has three flounces of deep thick fur of the glutton-bear or silver fox; between the flounces are gay pieces of cloth sewn in patterns. All the sewing is done with thread, made of reindeer sinews, spun simply with the hands and teeth. The head-dress, not often worn in the summer over the plaited hair, is a small, close fur cap. The boots and gloves are similar to those of the men.

Elegant Sledges and Tents.

The sledges on which they drive over the dreary wastes are beautifully light, consisting of a wooden framework supported on slight runners, nine feet in length. The guiding pole is about eighteen feet in length, slightly tapering and very heavy. At one end is a round metal knob, at the other a sort of lance-head. To stimulate the reindeer they are gently tapped on the back with the knob.

Their tents are of birch-bark, rolled in great sheets round poles, so placed as to converge at the top, and secured by a common thong passing through them. These tents are kept much more cleanly than those of the Laplanders or Eskimo. No remains of food, bones, or any decaying matter are seen about them, and altogether they are most pleasant abodes. In winter the skins are attached to the exterior, the edges all stuffed and packed with moss, and the interior is so well protected that it is as warm as one of the stuffy underground huts of the Eskimo, and twice as cleanly and healthy.

Reindeer form their chief wealth, but they also shoot with the bow and arrow, and in addition to hunting, reindeer driving and other pastoral pursuits, do a good deal of fishing. In the winter they skim over the frozen snow on snow shoes—overtaking their prey, and attacking with spear and arrow. In hunting they are the superiors of their neighbors, the Ostiaks; though, in this respect, it is said that their skill is decreasing since they have begun to substitute for their native weapon the rude Russian blunderbuss, carrying a ball as big as a walnut.

Under the name of Lesghians we find a number of petty tribes who inhabit the Eastern Caucasus, though, in reality, there are such radical differences in their dialects, that were we not compelled to try and extract something like order out of the chaos of races in this region, they might be fittingly described as fragments of different peoples. Indeed, this idea has been hazarded, though, unless we except the Udi, Kubetchi, and some other small tribes, whose affinities are even more doubtful than those of any of their neighbors, it is very probable that future research will show that all of them have a common origin, though isolation has in time wrought a wide contrariety in their spoken language. However, when the Lesghians made a stout a resistance to the Russians—and Schamyl, the revolutionist, was a Lesghian, not a Circassian, as usually described—a fanatical attachment to Islamism was, perhaps, the only bond which united them against the common enemy.

TYPICAL NATIVE OF THE EASTERN CAUCASUS.

In general it may be said that they are all equally illiterate, the only race of Daghestan which has a written language being the Avares or Avari, though even they have no alphabet, their books being written in Arabic characters. The Lesghian tribes are not well spoken of by travelers; but then travelers are always tempted to take for granted the *dicta* of those who preceded them. "When I passed through Daghestan," says one traveler, "I had but one attendant, and saw nothing to warn me

that I was among 'robbers and cut-throats.' It is long since the Russian Government put an effectual stop to the deeds which once made traveling in Daghestan so dangerous. It is, I think, not generally known that almost all the Lesghian tribes were Christians before the twelfth century. Now they are Mahommedans kindled into fanaticism by the preaching of Schamyl's revived Islamism.

A great drawback to the advancement of civilization among the Lesghian mountaineers is the fact that almost every valley has its own special dialect not understood very well in the next valley. In this small province there are twenty-three distinct languages with innumerable variations—none with an original alphabet. This degeneracy is common to all the mountain tribes. At present there may be about 600,000 Lesghians, though so many migrated to Turkey, and perished of hunger, disease and privation, that their number has within the last twenty years greatly decreased. Their courage was amply displayed in the fierce wars they waged under Schamyl for so many years, until, on the 25th of August, 1859, the leader of this hopeless revolt, forsaken even by his faithful tribesmen, was compelled to surrender.

The Women Better than the Men.

But, on the other hand, they are cruelly vindictive, and delight in brigandage, are addicted to drunkenness, and excessive smoking. The men are fond of gossip, idle, and treat their women as domestic drudges, who are of less value than their horses. They and the donkeys perform every agricultural operation, and all domestic labor, and are divorced whenever the husband tires of them, or can afford to buy a substitute, though, as a rule, owing to the poverty of the people, buying is very rare. Worn out with weary toil the Lesghian women of the poorer classes are seldom good-looking. All, except the wives of the dignitaries, are bent with labor, small, and prematurely old. Yet they are affirmed to be good spouses, and infinitely more faithful to their share of the marital compact than the men. No race is more abstemious than the Lesghians. Yet, though badly fed, poorly clothed, and in the habit of going about barefooted, they are strong, hardy, and scarcely know what fatigue or sickness means. The houses are remarkably clean, but their dress would bear a little neatness without subjecting the wearer to the charge of dandyism.

For ages the Lesghians had been the scourge of the Georgians, who had, accordingly, no reason for sadness when the fall of Schamyl brought their ruthless enemies under the yoke of Russia, and among the earliest facts in the history of this race are the accounts of battles fought with

THE LESGHIAN LEADER OF THE GREAT REVOLT IN DAGHESTAN.

these untamed tribesmen, or of the wars which the numerous septs waged with each other. In time, however, the hitherto truculent Lesghians will change for the better or for the worse. There is amongst them some capital raw material on which civilization might work, and as it advances we may yet see the fine smith-work and cutlery of Daghestan competing in our markets, in excellence, if not in price, with that of our own, as for a long time the excellent shawls woven by the Lesghian women, and the felt cloaks of Andi, have been held in esteem throughout the Caucasus.

Immense Extent of Russia.

The enormous size of Russia to its population, large though this is, strikes every one; yet no country in the world is expanding at the rate of the Empire of the Czar. In little more than two centuries the little district around the sources of the Dnieper has absorbed half of Europe, and overflowed the Ourals and Caucasus, until it has reached the head waters of the Oxus and touched the spurs of the Himalayas. Conquest, and the greed of power, has done much to cause this expansion. The necessity of having a frontier "scientific" enough to prevent the incursion of barbarous enemies has been another factor in the problem of Russian advance.

But the agricultural pursuits of the vast majority of the people have been the main, though not at first sight, the most prominent cause of the Empire continuing to spread. It is this which has brought the nation into contact with the barbarians on their borders, and has thus necessitated military occupation to protect the pioneers, or to punish the offenders. Within the bounds of old European Russia there is land enough to support the entire population of the Empire for ages yet to come. But Muscovite agriculture is of the most primitive kind. The soil soon gets exhausted, or decreases in fertility, and the agriculturist, finding land plentiful, has no temptation to linger on the same spot pampering the lean earth with manures and other incentives to crop-bearing. Hence it also follows that a people placed in the middle of a country so well fitted to support them would not readily adopt the life of a trader or mechanic.

CHAPTER IX.

THROUGH THE WILDS OF SIBERIA.

A Country Which is an Immense Plain—Lagoons and Marine Shells—Fossil Remains of the Mammoth and Other Animals—Clouds of Mosquitoes—Rich Mines—Metalic Wealth—Precious Stones—Making Fortunes—Men Who Can Learn Any Mechanical Business—Stealing Gems—Penal Colonies—"Sent to Siberia"—Criminals Exiled—Grades of Crime and Punishment—Long Marches Over Frozen Wastes—Treatment of the "Unfortunates"—Siberian Society—Parisian Fashions and Sparkling Champagne—Going Eighty Miles to Attend a Ball—Hopeful Future for Siberia.

THE country of Siberia may be described as one immense plain, bounded on the south by mountains, but gradually getting lower and lower as it approaches the North, until along the shore of the Frozen Ocean it is one dreary flat, little raised above the level of the sea. Even there, however, as noted in the recent voyage of Professor Nordenskjöld, there is a difference. West of the Lena the forest keeps a considerable distance from the shore; but to the east of that promontory it approaches in the form of stunted pines almost to the water's edge.

It is also evident that the country is, like most of the circumpolar region, rising, for lagoons, only separated by a few yards of land from the sea, are common all along the coast, and recent marine shells are found on the "tûndras," or mossy barrens along the coast, while the Liokov or Siberian Islands, though almost unknown, are said to be scattered with the bones of oxen, horses, and other animals, at present unknown even in a fossil condition on the mainland, as well as with the remains of the mammoth, the fossil tusks of which still form an article of commerce.

This mammoth was a wool-covered dwarf elephant, which there is every reason to believe, lived in the northern part of Siberia, when the climate was very much the same as it is now, and whose form has in a more or less complete shape been preserved to this day in the ice or frozen soil.

The region to the west of the Yenisei River presents one monotonous level, unbroken by hills of any sort, covered in its northwestern parts by forests, though for the greater extent this province is steppe or upland

plain. Much of it consists of dry sand, salt marsh, and bogs; one part has large birch groves, and is well suited for agriculture. Even where the soil is unsuited for crops its fine pastures afford abundance of food to the countless herds of reindeer and cattle possessed by the natives.

Eastern Siberia is more diversified, for in this part of the country the plains are intersected by offshoots of several ranges of mountains. Much of it is adapted to agriculture, and the South is covered for the greater

RAPID TRAVELING ON A SIBERIAN DOG SLEDGE.

portion of its extent with magnificent forests. Vineyards are common. The fruit is excellent, and wine of a fair quality is made, though as yet it has not found a market out of the country. The northern part, extending to the Arctic Ocean, is for the most part a dreary moss-covered "tûndra" on which, however, can be pastured, at certain seasons of the year, herds of reindeer, though the swarms of mosquitoes which, during the warm weather, infest this and every other portion of Siberia, render life almost intolerable to man; and the bots, which attack the deer,

combined with the disease which has broken out among them, are rapidly reducing the Samoyedes, Ostiaks, Voguls, and other tribes which depend on them, from affluence to poverty.

Siberia was in early times under Tartar princes, but about 1580 it was subdued by the emissaries of the Czar, and has ever since been looked upon, not so much as an integral part of the Russian empire as a convict settlement, or a region to which colonists could be attracted only by offering special inducements. It has an offensive smack of the hulks about it still, even though there are many free settlers in the country and, indeed, the peasants east of the Ural look upon Siberia as a perfect land of promise. Formerly a proprietor was empowered by law to despatch to Siberia any unruly serfs on his estate, and could transport them thither without a trial. It is, moreover, shut off either from the markets of the South by the long land journey and the exclusiveness of China, and by the equally extensive region which separates it from Europe; while the great rivers which flow through it, and afford water-ways in every direction, debouch into the Arctic Seas.

What Siberia Produces.

Therefore, unless the water-way which the enterprise of Wiggins and Nordenskjöld have opened up be found practicable, Siberia, until a railway links it to Russia proper, will remain a country much larger than Europe, and yet with only about three and a half million people—savage and civilized, bond and free—within its whole boundaries. Hence, with the exception of its mines, its trade is unimportant, and its manufactures few and languishing. Spirits and leather are, however, produced to a considerable extent. Soap-boiling, tallow-melting, and the making of stearine candles employ a good deal of capital; while cotton and wool are woven into coarse fabrics in some of the cities, which like Irkutsk, Tobolsk, Tjumen, Omsk and Tomsk have from 17,000 to 27,000 inhabitants.

The fisheries on the great rivers afford occupation for many of the native Siberians; and at the fairs which are periodically held, business is done with the most remote parts of Europe and Asia. The mines are, however, the great sources of wealth for Siberia at present. At one time all of them were Government monopolies, and worked for Government alone, but of late most of them have been thrown open to private individuals, the Crown simply exacting a royalty, and claiming particular gems as its perquisites. The result is that the Government not only makes more than it did in former times when it worked the mines on public account, but by abandoning its monopoly has stimulated those

directly dependent on their working to greater energy than was evinced by public officials sure of their salaries, whether the soil was searched after the most antique or most approved method, or whether it yielded little or much.

Large sums are often made by mere peasants in the gold mines of the Urals, and particularly in the sands of the River Nertcha and its tributaries in Eastern Siberia; indeed, some of the greatest Russian fortunes have been accumulated from this source. Silver, lead, platinum, copper (especially the form known as malachite), iron, coal, tin, cinnabar (the ore

SIBERIAN WINTER SCENE.

of quicksilver), zinc, bismuth, arsenic, sulphur, alum, sal ammoniac, nitre, natron and naphtha are also found in greater or less abundance in some parts of Siberia. Among precious stones the topaz, hyacinth, Siberian emerald, beryl, onyx, red and green jasper, chrysolite, red garnet, lapis lazuli, bakalite and opals exist in greater or less abundance in different parts of this region.

In the Murinsk district emeralds of extraordinary brilliancy are often picked up, as well as other precious stones, in which this district is particularly rich. Cinnabar is also abundant, particularly in the vicinity of

Nertchinsk, where the ore is worked by the worst class of criminals, and if gold and quartz mines are ever developed in the country, as undoubtedly they will be in time, the quicksilver will prove of great value in their working. Most of the gems are cut and polished in the country.

Men Who Can Learn to do Almost Anything.

The Russian peasant is not an inventor, but he has a genius for imitating. He has only to be told to go and do so and so, and in time it will be done. He will in this manner become a blacksmith, a wood carver, a copyist of painters, an engineer, or a lapidary, provided that he is only given time enough. He will watch the next workman to him using his saw, chisel or file; then he will cautiously imitate him, doing a little at a time, and nothing rashly. Next day he will show more skill, until in a few weeks he becomes a sufficiently skillful workman to be entrusted with tasks requiring great judgment and even knowledge to execute. The visitor is astonished to find men not above the rank of peasant, and in all likelihood convicts under surveillance, executing the most beautiful engravings on beryl, amethysts, topaz, and emeralds, or carving on jasper and porphyry vases with a skill which could not be exceeded, if equalled, in the great centres of fine-art work in Europe. Yet such intelligent laborers are not paid more than one dollar per month, with rations of a few pounds of black bread. They are quite content with their lot, and toil on to make fortunes for the rich mine-owners, who live in great state in fine mansions.

Systematic Stealing.

Even the master workmen or overseers are only paid some fifty or sixty dollars per annum, but they, like the ordinary laborers, have their perquisites, in the unrecognized pilferings which they can manage to effect among the treasures they handle. Indeed, if we are to credit the gossip of the Siberian towns, only a moiety of the gems discovered find their way into the hands of their legitimate owners; and though Government officials are not allowed to own mines, it is reported that they are not the most stoical of those who find amethysts and topaz, lying about unnoticed, too great temptations for ordinary virtue. The buying and selling of precious stones forms a business which all classes dabble in.

The visitors to a Siberian town are, soon after their arrival, waited on either with stones cut and uncut, by the recognized or by the irregular agents of the numerous lapidaries or dealers. The very children dog the new arrivals at every step with rare bargains wrapped up in bits of rag, either on their own account or as the least suspected means of entrapping the unwary traveler into purchasing at what seems a low price stones

worth next to nothing, or which may have been made by the skillful artificer of artificial gems in Paris or Vienna, and exported to Siberia.

ONE OF THE PRISONERS OF A SIBERIAN CHAIN-GANG.

But Siberia is, in the minds of the world at large, associated with something more familiar than either furs or precious stones. For a century

and a half no tidings have come from the North more familiar than the news that so many people have been "sent to Siberia." Since the days of Peter the Great it has been the doom of tens of thousands—gentle and simple, high and low, criminals the vilest, patriots the loftiest, dreamers the most imprudent. In 1874, nearly 15,000 wended their way thither, and in 1879, the number of "unfortunates" was even greater. The word conveys to the mind of Southern Europe all that is most repulsive in penal banishment. Instinctively the mind of the newspaper reader who catches the word recalls the "Exiles of Siberia." He pictures to himself long dreary troops of "unfortunates" trudging through the snow, or perishing of hunger and cold and misery long before they reach the mines of Ural, or the jasper quarries of Ekaterinburg. He hears the clanking of the chains, the moan of the exiles, and the crack of the Bashkir Tartar's whip, as he drives along the victims of the "Third Section of the Imperial Chancellery," to lead a desolate existence and die a felon's death amid the desolations of Siberia.

A General Receptacle for "Jail-Birds."

Even in Russia there is a dread of the name which is not altogether inspired by its penal terrors, with which the refractory subjects of the Czar are only too familiar. But, in reality, our ideas of Siberia are, like the majority of popular impressions transmitted by tradition, altogether beside the truth. With the winter's snows we should contrast the flower-covered plains of summer, the luxuriant corn-fields and purple vineyards of autumn in Southern Siberia. Mines there are, and very rich ones too, but there are also noble cities, splendid residences, and society as polished as any in Europe. Siberia, indeed, is a general place for emptying the jails of Russia, and men are banished to Siberia who would, in other parts of Europe, merely suffer a few years' imprisonment.

And of late years the traditional horrors of exile over the Urals have greatly altered for the better, though doubtless the worst class of criminals are not treated with any great leniency. The great numbers sent at different times have leavened the whole of society in Siberia. Indeed, if we take into account them and their descendants, as well as the convicts whose sentences have expired, and who have remained in the country, they form the most numerous portion of the population. No traveler can have journeyed over the Ural mountains without meeting long strings of exiles, some of whom have been on the road six, eight, or ten months, and sometimes, as in the case of those destined for the settlement in the Amoor Valley and Kamtchatka, even two years, though of late the exiles for the maritime parts of Eastern Siberia have been despatched by sea.

The worst are chained, but, except in the vicinity of the towns through which they may pass, great leniency is usually shown to the "unfortunates," as with kindly tolerance the exiles are styled by the country

CONDEMNED CRIMINALS ON THE ROAD TO SIBERIA.

people. The women and children—especially when they are the families of the convicts, permitted to accompany them—are usually conveyed in wagons, or, farther north, in reindeer or dog-sledges; while the political prisoners of rank, when once they are clear of the large cities, may be

seen consorting with the officers of the guard, and even sharing their meals in the block-houses along the route.

The place they are sent to is proportioned to their turpitude, the worst offenders being despatched farthest from the boundaries of Russia in europe, for instance, to the shores of the Arctic Sea, and the eastern provinces, while the lighter culprits are permitted to settle down in Western Siberia, immediately to the east of the Urals. This class of convicts are usually condemned only for short terms, and are designed for colonists on the expiration of their tern of forced labor. Even before that date they are often employed in the Government service, more like ordinary laborers than as legal slaves. The third and highest class of exiles are condemned for mild crimes. In fact, they are considered to have expiated their offences by the time they arrive in the country, and are at once established as proper colonists, sometimes in villages already existing, at another time in new ones laid out for them.

AN EXILE ESCAPING ACROSS THE FRONTIER.

Siberian society, constituted to a great extent of such elements as these described, is very genial, and frequently refined, but not moral. Many

of the convicts are political offenders, some of the highest education and nobility of character; but a vast number who have gained a certain amount of freedom, or whose sentences being expired, have settled down

OSTIAK HUNTERS OF SIBERIA WITH DOGS AND TRAPPINGS.

in the country, are of quite another class. Actual criminals have no place left them for repentance; they are always under the jail ban. But offenders of the higher class, and especially political exiles, are rarely scowled on. Russian society is the most tolerant in the world, and

since political exiles have increased, the front of their offending has ceased to be visible. They are after a year or two received into the best company, and in every way obtain the treatment their rank and education would have entitled them to at home. It is only the worst offenders who are not allowed to be accompanied by their wives and families.

Of course, there is in the country a large amount of the worst criminal element. All the Siberian unfortunates have not been Nihilists or political offenders. Hence the jail taint attaches to many villages, and even to the large cities. But with such people the traveler does not come much in contact, and the severe police regulations secure him against any serious annoyance from their attentions. Civil and military officials are principal people, and among them life seems one continual round of pleasure, especially in South Siberia, where the summer and autumn climate is excellent, though, as elsewhere throughout the country, the winter cold is severe, but dry and healthy.

To those who have lived in the country in any other capacity than that of convicts, the name which to Europe is redolent of all unsavory memories recalls only sweet reminiscences. The families of officials will often, even in St. Petersburg and Moscow, talk longingly of the pleasant days of "Sibir," and the "good society" of, say Irkutsk, is as refined as that of any European city of the same size. The interior of the houses is more comfortable, Parisian fashions more brilliantly represented, and the champagne sparkles there in greater profusion and better quality than in many a fashionable saloon of the most important European cities. While in Europe people think twice before they start on a visit of a few miles' distance, a ball in Siberia sometimes brings together people from distances of eighty to one hundred and more miles across rivers, hills, precipices, and over roads and bridges, which would terrify a European brought up in the luxuries of a refined civilization.

There is, doubtless, a great future for Siberia. The mighty rivers permeating the country on to the very confines of Mongolia will form great highways down which the wool, beef, timber, wheat, wine, and ores of Siberia, as well as the fossil ivory found on its shores, will find their way to Europe. Nor has the discipline of the penal settlements of the country which, after very exhaustive inquiries on the subject, we can affirm to be in modern times, as a rule, firm without harshness, been without good effect, for in no part of his dominions is the Czar more adored; and it is noted that the most turbulent characters often become, after a few years of "Sibir," docile citizens and industrious farmers.

CHAPTER X.

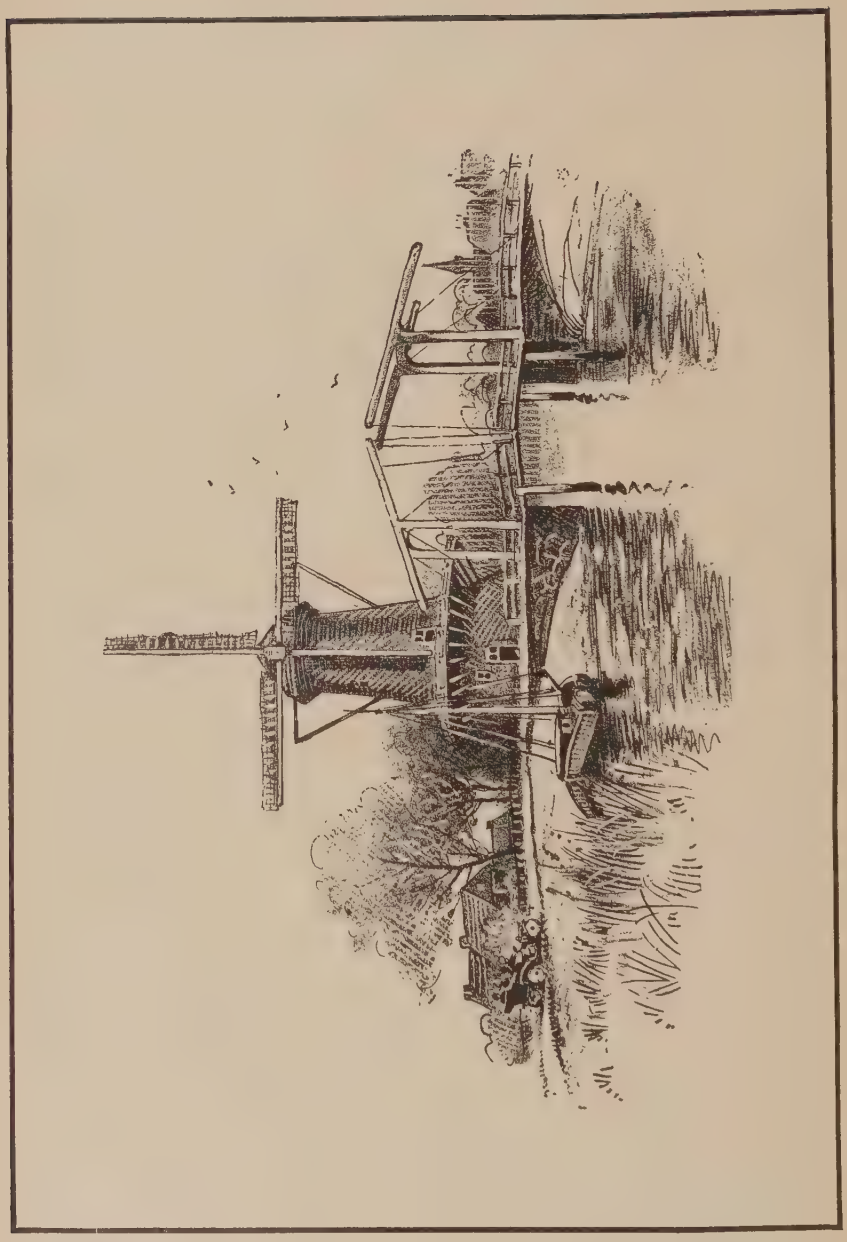
QUAINT OLD HOLLAND.

A Very Attractive Country—Fight to Keep out the Ocean—Ancient Dykes—Towns Below the Level of the Sea—Shrinkage of the Zuyder Zee—Peter the Great—A King Working as a Ship-Carpenter—Patience and Industry of the Dutch—Domestic Life and Comforts—Poor Country and Rich Inhabitants—Farmers' Houses Furnished with Every Luxury—Passion for Cleanliness—Universal Scrubbing—Mercantile People—Efficient Eaters and Drinkers—Fish and Vegetables—Drinking and Smoking Habits—Little Intemperance—Singular Customs of Courtship and Marriage—Celebrating the Wedding—Largest Town in Holland—How Amsterdam gets its Name—Industries and Commercial Importance—Numerous Canals—Abominable Stenches—Art Treasures—Galleries of Paintings—Wind-mills—Church Chimes—A Country "Great in its Smallness"—Hospitality a National Trait.

IT is impossible for the dullest of tourists to run through Holland without every hour seeing something quaint, something attractive, something worthy of admiration. A large percentage of the country, if left to nature, would be simply swamp, peat bog, and sand-hills. A considerable portion is reclaimed from the sea, and is protected from submergence only by artificial barriers, while some of the most fertile regions were at one time actually under water. To the student of his species there is no more inspiriting spectacle than this continual contest between the intelligence of puny man and the mechanical might of Nature, seemingly so irresistible.

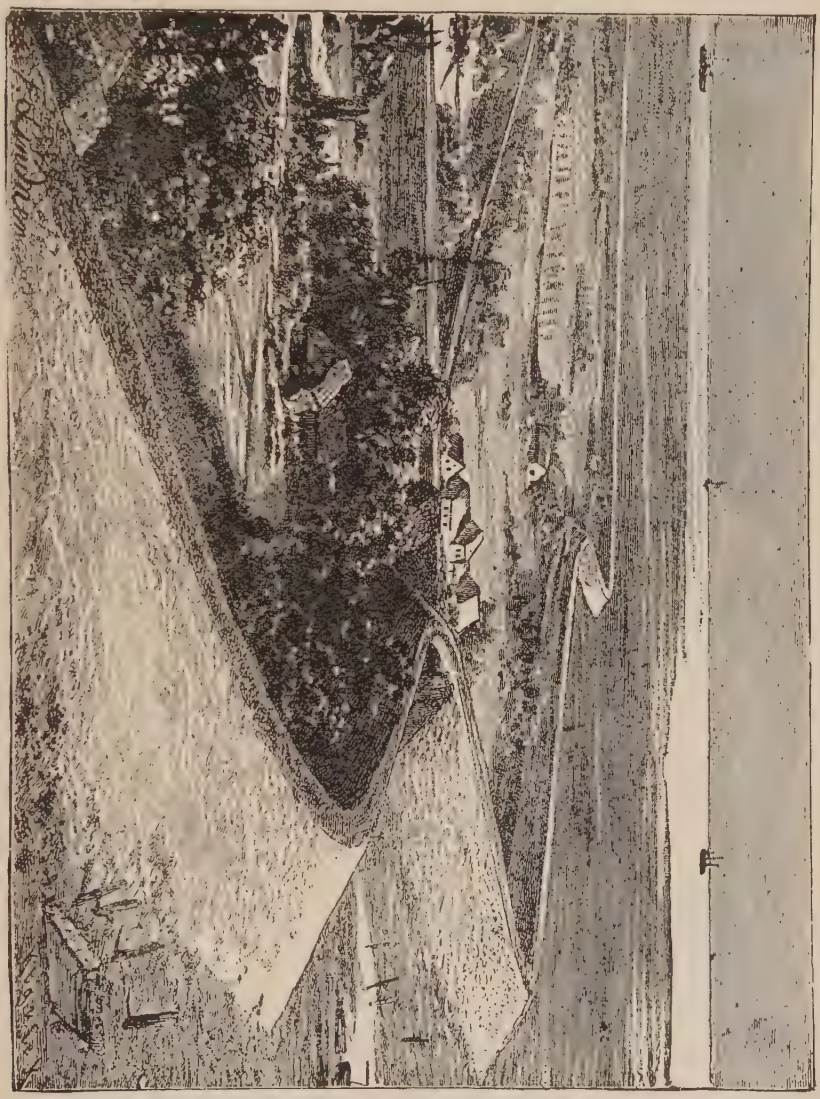
From Holland to Denmark, the traveler—be he ever so unobservant—is the witness of this mighty battle between the sea and the land; a fight that has been going on since long before the dawn of history; that occupies the earliest books written regarding these lands and waters; that fills the chronicles of the Middle Ages; that is still going on, and which, there is no possible doubt, will rage until the crack of doom.

From the Zuyder Zee to the Baltic, he who runs may read of this warfare in dyke and marsh and canal, and will note that, as a rule, man has beaten the sea. He has shut it out by huge artificial buttresses, wheedled it off by water-wheels and engines, and then bade it defiance as he peacefully ploughs the sandy land, or makes good butter and bad cheese from the sleek kine fattened on fields where, within the memory of his father,



SCENE IN HOLLAND

the seaweed grew. He must be a misanthrope indeed who can listen at Walcheren or the Helder to the roar of the waves beating against the flood-gates high over his head, without a certain tremulous satisfaction at



DYKES ON THE COAST OF HOLLAND FOR KEEPING OUT THE OCEAN.

knowing that, but for these works, hamlet and village, city and farm for many a league, would, in less time than it takes to write these words, be under water.

Yet the fight is a stern and unceasing one. Day and night the corps

of engineers watch their entrenchments and earthworks; and the merest trickle through a crack in the wall at West-Cappel or at Halfweg would raise a greater din in that world which lies between the Schelde and the Dollart than the fall of Stamboul or the sack of Moscow. For by these the "water-rats of Holland" live by a world which has ceased to send its ships to them. Holland is one vast meadow, bounded seaward either by dykes or by sand-hills thrown up by the waves. These sand-hills are invaluable when they keep out the sea, but the sea cannot always consider the convenience of its enemy, and occasionally throws them across the entrances to harbors, bringing ruin in another way. And so, in the end it gains the mastery.

The Zuyder Zee, once ploughed by the keels of thousands of ships, is so rapidly becoming useless for navigation that there has been a proposal to drain it, and thus gain from it as land what there seems little hope of ever again obtaining from it as water.

Battle with the Ocean.

Everywhere is the same story of the sea shoaling up the harbors, and bringing destruction on cities once more or less "proud and luxurious." It is a relief to arrive at Harlingen from those "Dead cities of the Zuyder Zee," and find it possible to sail into a harbor, albeit not an exceedingly busy one. Yet here we have not heard the last of the sea and its bombardment of the land. The present town occupies the site of a much more important one which was entirely swallowed up by the sea in 1134. Again and again did the land in the fight get the worst of it, until in 1566 Robles de Billy, the Spanish Governor, surrounded the whole province by dykes, on one of which stands his statue in testimony that the traveler's tale is true.

It is pleasant to escape from the wave-washed shore, and run eastward through Groningen. Still, there are plenty of canals and plenty of low lands in this province. But we once more get into a region of living men and living towns. After rich, green, flat, picturesque Holland, even the heathery Hochmoor of Oldenburg, with its peat bogs and starved patches of buckwheat, and the thin fields of Hanover are pleasant to look at as a relief. For a time at least, until we reach the shore of Holstein, we have but glimpses of that gallant—though terrible—battle between land and sea. We come to a region where it is no longer necessary to pierce

"——with gigantic piles
Through the centre of the new catched miles,"

and to the stake a "struggling country bind," as Andrew Marvel ex-

PETER THE GREAT WORKING AS A SHIP-CARPENTER IN HOLLAND.

presses the facts which we have described less metaphorically, and which have so materially influenced the character of the people.

Story of Peter The Great.

Peter I., called "the Great," began his reign with the firm resolve to make Russia one of the leading states of Europe. It was already a powerful country, but was cut off from all relations with European states. He believed that to give his country the importance she was entitled to in the European system she must have a more extended sea-coast. In 1696 he conquered and annexed to his dominions the territory of Azov, which had been held by the Turks. This gave him a footing on the Black Sea, and he resolved to create a fleet which should enable him to hold his conquest and make him the superior of Turkey.

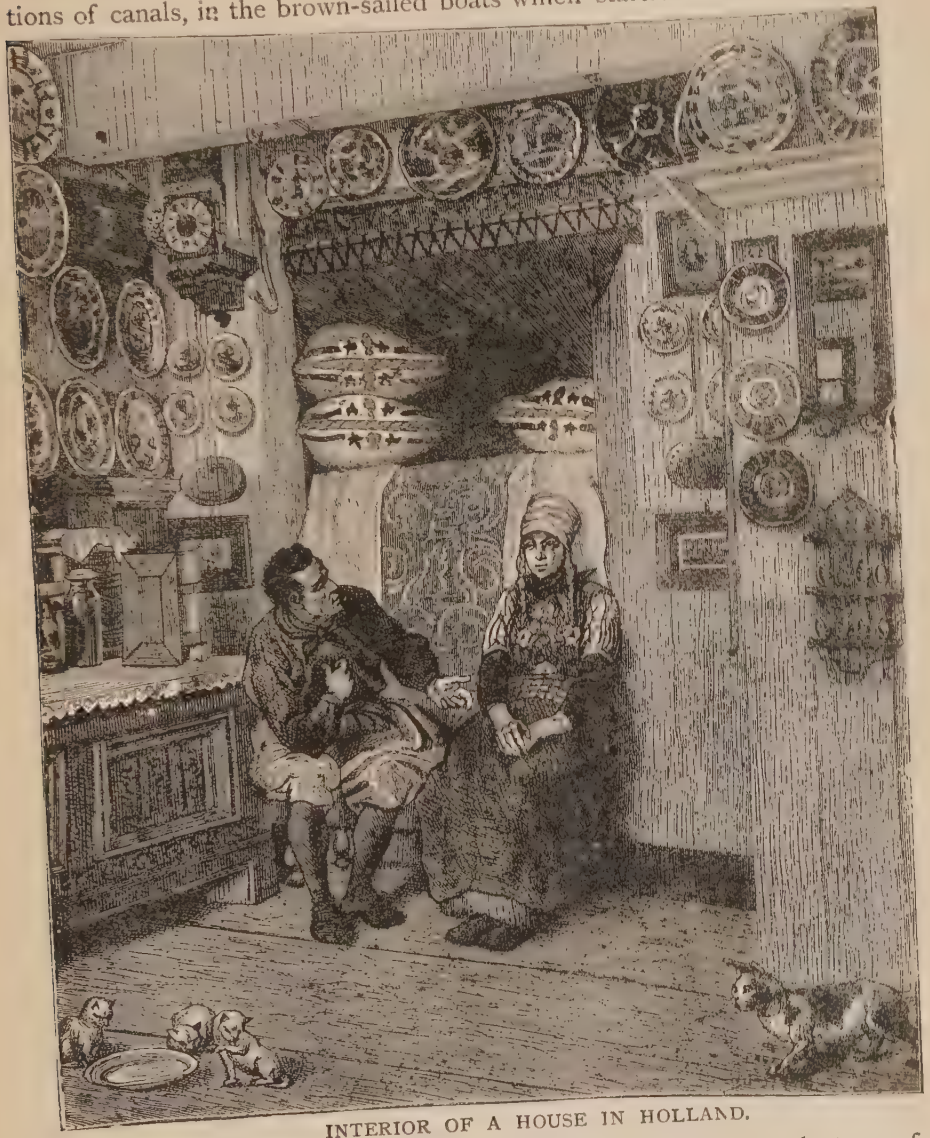
In order to do this, and to learn the arts of civilization, which he meant to introduce among his people, Peter placed the government in the hands of an old noble, and traveled into foreign countries to study their institutions and learn the industrial arts by which they had gained their prosperity. He visited Sweden and Brandenburg, and fixed his residence at Saardam, in Holland, where he worked as a common ship-carpenter, receiving his wages every Saturday night, and living in all respects like the other workmen.

Thus he learned by actual experience the art of ship-building, and observed with vigilant eyes the other sources of the prosperity of Holland. During this time he kept a close watch over the affairs of Russia, and directed the government of that country from his laborer's hut in Holland. In 1698 he visited England at the request of William III., by whom he was cordially received; but instead of giving himself up to court festivities, he passed his time in visiting the dock-yards and perfecting his knowledge of ship-building. He thus prepared himself to be the civilizer of his own country—a noble ambition which goes far to redeem his faults.

Interesting Characteristics.

Wherever one goes in Holland, with an eye for something more human than "scenery," it is impossible not to witness evidence of the patience, the industry, and the consequent prosperity of the Netherlanders whom, from an old misuse of the word "Deutsch," that is, German or Teuton, we term "Dutch." Comfort, domesticity, and even wealth, are apparent on every side. The amazing cleanliness of the villages, and the amount of bullion in the shape of those curious corkscrew gold curls worn by the peasant women, with the lace veil behind, or the silver skull-caps, still in favor, strike every one as a favorable contrast with the tumble-down appearance of so many German and Danish hamlets.

There is even something pleasing in the peaceful green meadows dotted with sleek cows, in the long rows of willows lining the endless ramifications of canals, in the brown-sailed boats which startle one in the midst



INTERIOR OF A HOUSE IN HOLLAND.

of a field, in the great steep-roofed farmhouses, and the abundant proofs on every side of the material welfare of this thrifty race. A farmer's house is usually filled with good furniture, and the residences of the

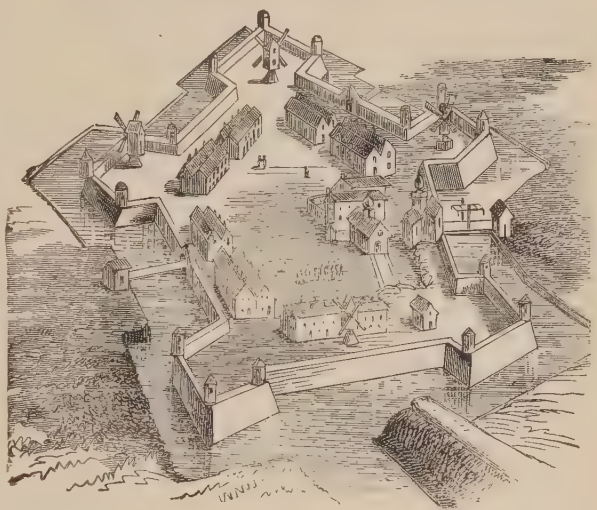
citizens are furnished with a luxury which is almost unknown in Germany.

If at all well-to-do the Hollander must have a house to himself; hence the number of front doors which a Dutch street presents, though "flats,"

WINTER SCENE IN HOLLAND

which, to the delight of the cooks, have their kitchens to the front, are also very numerous. Yet the Dutchman is a great traveler within certain limits. Very few of the mercantile class have not been out of their own country. Most of them have visited or resided in the Dutch colonies of

the Malay Archipelago, or, perhaps, have tried their fortune among the South African Boers, though there, unfortunately, a Hollander from Holland is not much more popular than an Englishman from England. A Dutchman, from the mere fact of his language being little understood by the rest of the world, makes a point of reading and speaking several others. Hence a Hollander, at all above the grade of a mechanic or small tradesman, has a broad interest in the world's affairs which contrasts agreeably with the narrow provincialism of the inland Teuton, and an easy politeness which reminds us of the Danes, though in the latter case, the causes which render the Dutchman a man of the world are lacking in a country where the inhabitants have few immediate concerns outside the bounds of their own kingdom. Holland was for ages, as was England, the refuge of all those who were in distress, or who found themselves in trouble by reason of ideas too advanced for their neighbors. Indeed, at a time when political and religious persecution was rampart in other places, hundreds of the best of Britons made their home in the Netherlands, and by infecting all classes with a love of freedom, and of liberty which does not sink into license, they have amply repaid the hospitality they were afforded. Some of these were Puritans who afterwards settled New England.

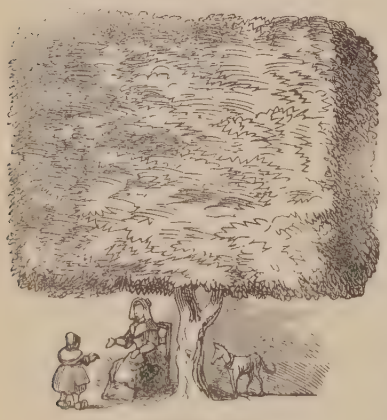


CITADEL OF ANTWERP IN 1585.

Once fairly in Holland, it is impossible not to be struck by many customs which are peculiar to the Hollanders. The intense—the painful—cleanliness of the people must amaze everyone. The visitor hears long after he is in bed the sound of the scouring brush, and the chances are that he is roused out of his sleep in the morning by a stalwart housemaid squirting water against the walls and windows from a hand-engine on the pavement beneath. The very roads, paved as most of them are with small bricks known as "klinkers," are preternaturally

clean. The villages are spic and span, and on some of the dairy farms, like those at Broek, which have long been a show place for tourists, the barns are kept so scrupulously neat that they are often used as rural reception rooms. Whether, as grave men, and some whose statements must be received more cautiously, aver, the cows' tails in some parts of Holland are tied up in order to "preserve the unities," it is not necessary to believe, though there is nothing improbable in Dutch cleanliness being carried to this extent.

The mercantile character of the people is evidenced by the beams projecting from the gable ends of many houses, and used for hoisting goods into the "lofts," which are either let out or used by the tenants as warehouses; while the thrifty yet comfort-loving habits of the townsfolk are shown in the numerous announcements over cellar doors to the effect that there "water en vuur te koop," or, in plain English, to save an economical housewife keeping in her fire on a hot summer's day, she may there for a small payment obtain enough boiling water and lighted turf to prepare her tea or coffee.



A DUTCH TREE.

The heavy "bluff-bowed" Dutchman of the caricaturist, the man with wide breeches, and a build which requires all their amplitude, is now-a-days more frequently seen in pictures than in the streets of the Dutch towns. But it must be remembered that our satirists were more familiar with the maritime than with the inland Hollanders, and even yet many of the figures who live in these old-world pictures may be seen very freely represented among the fisher-folk on the islands of the Zuyder Zee, or in any of the ports. The town Dutchman is, however, as a rule, rather spare, though his "vrow" tends decidedly in the opposite direction.

Plenty to eat and drink is the rule in Holland, and even among the poorer classes, though their fare may not be refined, an empty stomach is rarer than in any other country in Europe. To stay their robust appetites occupies a large share of the life of this practical people. The large crown decorated with bay-leaves and gilding, denoting that new herrings have arrived at the shop over which the sign is suspended, is to the Dutchman a far more important announcement than a similar piece of news would be to an American in a much lower social grade.

A Dutch salt herring is a treat worthy of the esteem in which it is held, and no table, no matter how refined, does not display this dainty, some time or other. Smoked eels are another Dutch specialty. The open-air shell-fish barrow is not more common in the London streets than the stall in the Dutch towns for the sale of smoked eels, pickled cucumbers and hard-boiled eggs. Gin-drinking and smoking are equally common, yet, it is said, about equally harmless, for what would be immoderation in a less phlegmatic race, seems to have little effect on a peo-

DAIRY WOMAN GOING TO MARKET.

ple who pass much of their time in the open air, and work hard in the intervals of their meals.

Intemperance is, however, not frequent, except at the "kermis," or fairs, which play so large a part in Dutch life. At these festivals people assemble from far and near, and then, better than on any other occasion, the numerous curious costumes of the country people throughout the kingdom may be seen to perfection. The amusements of these popular gatherings, are shows, booths of all kinds, and especially groups of rustics,

young and old, dancing backwards and forwards through the town, refreshing themselves at intervals with "Hollands," and "broedertjes," cakes baked in booths in the street, and consumed as fast as they can be prepared.

Among the "boers" or peasants of North Holland, when a young man is enamored of a girl, he repairs to the house of her parents a week or two before Easter or kermis time, at nine o'clock exactly, and generally

AMSTERDAM IN 1639.

on a Sunday. If on entering he is offered a chair, he may consider himself a welcome visitor, when the parents withdraw, in order that he may press his suit. If not, the damsel addresses him in the following lines:—

"Ze je waar het vuur gaat
Dan weet je waar de deur staat,"

the blunt meaning of which is that he had better make as straight for the door as the flames go up the chimney.

In former times it was the custom for the bride's trousseau to contain her shroud and cap, and in some districts it was the practice for newly-married couples to provide themselves with several elm planks, from

which, at the close of life, their coffins were made. These were considered as indispensable portions of the household furniture. Among the primitive folk who make these curious additions to their ante-marital gear, the door of the house in which the bride lives is painted green, and when the wedding-day arrives flowers and evergreens are strewn in front of it as the young people, attended by their friends and relations, proceed

IMMENSE QUAY IN AMSTERDAM.

to the place of marriage. On their return, after singing lively songs, a large silver bowl, used only at birth and marriage festivities, filled with brandy and raisins, is produced and circulated among the guests, after which a substantial meal is eaten, one of the invariable dishes being gray peas mixed with raisins, and in the singing and dancing which follows, one song, "Hoe zoet is't waar de vriendschap woont"—"How sweet it is where friendship dwells"—is never omitted.

Among other curious matrimonial regulations which at one time prevailed in Holland, no citizen was permitted to marry out of his native town, except on payment of a heavy fine, though it is perhaps needless adding, a great many ingenious couples managed to evade this sumptuary law.

Amsterdam is the largest town in Holland, and is built in the shape of a crescent or horse-shoe. The visitor may discover this fact for himself by means of his guide-book; or from the summit of the palace; or in the course of a morning's perambulation through the town, when the information will certainly be volunteered by one or other of its intelligent inhabitants. It is situated at the influx of the Amstel into the Y, the latter

SCENE IN HOLLAND SHOWING THE WINDMILLS.

being an arm of the Zuyder Zee, and forming the harbor. Hence the name Amsterdam—the dam of the Amstel or Amster. The locks are of enormous strength, to resist the inroads of the sea; and the immense precautions taken are not without reason, for the streets of Amsterdam are much below the sea level. The docks and quays are large and important, and capable of accommodating a thousand vessels.

Amsterdam was not always the place of importance it is now. In the twelfth century it consisted merely of a few fishermen's huts. About the year 1204 the dam was constructed which gives the name to the town. In the fourteenth century the town began to grow in importance, and in the sixteenth century it had risen to eminence. It has been fortunate

enough to retain its prosperity up to the present day. In commercial importance, in wealth, in its amount of trade, it holds a prominent position in Europe. Its industries are numerous—sugar and camphor refineries, manufactories of tobacco, large breweries and diamond mills.

Amsterdam has its various quarters. Its fashionable and select quarter, which is naturally very exclusive, and turns up its nose at anything in the shape of a trade below a banker or a rich shipowner; its commercial quarter, its manufacturing quarter, its shipping quarter, its Jews' quarter, highly distinguished for dirt and fried fish, its busy quarter, and its idle quarter. The system of drainage is most defective, and canals intersect the town perhaps more completely than they do any other town in Holland. All the quarters just enumerated possess the one common feature of canals; and all the canals possess the one prevailing, abounding and most unmistakable characteristic of bad smells. It would be utterly impossible to describe the smells of Amsterdam. Those of Cologne have passed into a proverb; those of Amsterdam ought to possess a history of their own. And yet they are considered healthy, for the Dutch doctors send patients here in order that they may inhale the odors.

Dutch Paintings and Windmills.

Amsterdam is rich in art treasures. The picture gallery is perhaps the best in Holland, but the rooms are so badly constructed that the beauty of the paintings is often lost. Rembrandt's masterpiece, "The Night Watch," is here, a marvellous production. The collection of etchings in the gallery is equal or superior to that in the British Museum.

The endless windmills used for grinding corn, for manufacturing purposes, and for pumping superfluous water from the low lands into the canals, meet the eye in every direction. The chimes in the church towers fall on the ear every few minutes as they play a few bars of some operatic air in proclaiming the passing hours. The "gaper," or head, with the mouth wide open and the tongue protruding, over the druggists' shops, and a host of other features peculiar to Holland, might be noted. The enormous consumption of tobacco in the country cannot fail to strike every one, while the accomplishments of the Dutch in the fine arts are evinced by a visit to their picture exhibitions.

Still, taking the Hollanders all in all, they constitute one of the most remarkable races in Europe. Their perseverance in reclaiming their country from the rivers which sap it, and from the sea which covered part of it, as well as the ingenuity which they display in keeping what they have got, are among the most warrantable reasons for that honest pride in a country which, as Detmar puts it, is "great in its smallness."

CHAPTER XI.

SCENES IN GERMANY AND THE NORTH.

Where the Real Germans are Found—Mixtures of Nationalities—Complexion and Figure—Fondness for Music—Courtships and Engagements—Fidelity in Social Intercourse—Old City of Nuremburg—Picturesque View—Ancient Canal Recently Finished—Manufactures—Printing the Bible—Fine Architecture—Hans Sachs—Cobbler Poet—Longfellow's Tribute to the German Bard—Gloomy Old Dungeons—Terrible Tales—Famous Church and Tomb—Story of St. Sebald—A Well-ordered City—Polite People—Parks and Concerts—Residence of the Nobility—Bombardment of Brussels—Superb Buildings—City of Liège—Romantic Situation—Imposing Edifices—Zoological Garden—Copenhagen—Ancient Siege—Danish Fleet Defeated by Lord Nelson—Ravages by the Plague—Famous Museum—Astounding Relics—The Norwegians—Rough Exterior but Kind Heart—The Danes—The Swedes—Icelanders—Love for a Frigid Island—Honest Old Fogies.

THE modern inhabitants of Germany, the Germans, occupy a very large portion of Germany proper and of Eastern Prussia, as well as a broad band of country to the right of the Rhine. They are found also in different parts of Hungary, Poland, Russia, and North America. The Germans of the East and South having mixed much with the people of Southern Europe, do not represent exclusively the Teutonic type; some of them are met with who have brown hair and black eyes.

Germany does not admit of any very distinct definition. Throughout the whole of this country there exists no identity either of customs, language, or religion. Its provinces on the frontiers of Denmark are half Scandinavian; those which are neighbors of Italy or France are half Latin; the provinces which together represent the frontiers of Germany form a zone more mixed and various than is possessed by the frontiers of any other nationality.

It is only toward the centre of the country that we find in all its purity the blonde Germanic type, the feudal organization and the numerous principalities which are its consequences. It is here that we find the conditions of climate which appear to produce this race with blue eyes, red and white complexion, tall figures, and full, powerful frames.

The Germans possess an ear which appreciates sound in a wonderful

manner, and reduces with ease to melody the fleeting impressions of the soul. Germany has given the world fine music and fine musicians.

Marriage Engagements.

Love, whose duty it is to bring together the sexes into a united existence, is in Germany neither very positive nor very romantic; it is dreamy in its character. It seeks its object in youth, and speedily finds it; faithfulness is then observed until the time for marriage arrives.

Early engagements being admitted by custom, betrothed couples are seen together, arm in arm, among the crowd at public or private festivals, or in lonely wood, or in twilight seclusion. Pleasure and pain they share with one another, happy in the conviction that their hearts beat in unison, and in the repetition, over and over again, of tender assurances. The calmness of their temperament, and the certainty of belonging to one another some day, diminish the danger of these long interviews.

When the wedding-day, looked forward to for so many years, arrives, the characters of man and woman have taken their respective stamp. The young people know each other; they have no ground for suspecting deceit, for the singleness of their hearts admits of only one affection.

Ancient City of Nuremberg.

The second city of Bavaria is Nuremberg, with a population of 92,000, the "quaint old town of toil and traffic, quaint old town of art and song," that for 800 years and more has guarded, with its frowning ramparts, the valley of the Pegnitz. Since 1806 it has appertained to Bavaria; but anciently it was one of the "free cities" which, in spite of feudal barons, and often under the very walls of the strongholds of tyranny, fostered a spirit of independence, and learned to defy both Pope and Emperor.

The Königs-Strasse River enters the city under one of the massive watch-towers. From the bridge there is an exceedingly picturesque view of the city. On both sides the river is overhung by houses with carved wooden balconies, brown with age. The Pegnitz itself is only a narrow sluggish stream. It used to fill the moat in time of siege, but this service is no longer required of it, and its principal business now is to assist in supplying the Ludwig's-Canal that unites the Rhine and Danube by way of the Main. Charlemagne, with his far-seeing genius, planned this canal a thousand years ago, but it is only a little over thirty years since it was completed by the art-loving King Ludwig. The canal has been of great use in reviving the trade of Nuremberg.

The Königs-Strasse was once the centre of the commercial wealth and prosperity of Nuremberg. Immense warehouses of ponderous stone, with high-pitched roofs, hold the vast chambers that were once crowded

with the treasures of the world. The velvet of Genoa, the glass of Venice, the lace of Flanders, the products of the Levant and of the distant Indies were gathered here; and here came the merchants of all nations to buy from the clever Nurembergers their armor, and guns, and paper, and

HOUSE OF THE CELEBRATED HANS SACHS.

printing-presses, and clocks, and watches. The best translation of the Bible before the time of Luther was printed and sold at Nuremberg.

The lovers of Gothic domestic architecture find in the streets of Nuremberg a rich treat. Picturesque dormer windows, pointed oriels and carved balconies are everywhere. Very wonderful are the roofs, singu-

larly diverse in character and outline—some of antique simplicity, high-pitched piles of tile-work, with two or three rows of tiny windows; others made elaborate with pinnacles, turrets, arcades, slender pillars, and arches. The grander mansions of the city are very picturesque—flamboyant tracery is lavished on the balconies and galleries; on the panels are carvings in deep relief, and fretted arches and statues adorn the gables.

The house occupied by Hans Sachs, who was born in 1494 and died in 1576, is in the street that bears his name. There is a bronze statue of him on the Spitalplatz, erected in 1874. He wrote 6,000 poems, and his satirical verses were very popular. Longfellow sings of the house of Hans Sachs thus:—

"Here Hans Sachs, the cobbler-poet, laureate of the gentle craft,
Wisest of the Twelve Wise Masters, in huge folios sang and laughed.

"But his house is now an ale-house, with a nicely sanded floor,
And a garland in the window, and his face above the door,

"Painted by some humble artist, as in Adam Puschman's song,
As the 'old man gray and dove-like, with his great beard white and long.'

"And at night the swart mechanic comes to drown his cark and care,
Quaffing ale from pewter tankards in the master's antique chair.

"Vanished is the ancient splendor, and before my dreamy eye
Waves these mingling shapes and figures, like a faded tapestry.

"Not thy Councils, not thy Kaisers, win for thee the world's regard;
But thy painter, Albrecht Durer, and Hans Sachs, thy cobbler-bard."

Dismal Dungeons and Horrible Legends.

The Rathhaus, or town hall, rebuilt in the Italian style in 1619, includes portions of an older edifice erected in 1322. The old Rathhaus was the heart of the trading republic of Nuremberg, whose pulsations, deep and powerful, once made themselves felt throughout the whole Germanic Empire. We cannot stay to trace the steps by which the Government of Nuremberg developed into a tyrannical oligarchy, working for selfish ends and destroying with heedless cruelty every one that opposed it.

Beneath the Rathhaus are dungeons, with secret passages, leading to the town moat and to the private houses of the councillors. The dungeons are deep and horrible; in one chamber are rings and hooks and screws, and other remains of the frightful apparatus of torture. One of the passages that wind from these subterranean dens leads two miles beyond the town into the forest.

Here is another "chamber of horrors," approached by a zig-zag passage with five or six doors, evidently intended to shut in the cries of the

wretched victims. Here is the secret prison of the Senate, and the terrible Eiserne Jungfrau (iron virgin.) This is a hollow figure, seven feet high, dressed like a Nuremberg girl of the seventeenth century. The victim who had been remorselessly doomed to the virgin's embrace was pushed towards it, when, by a secret spring, the front—consisting of two folding-doors, studded inside with spikes and blades—opened, and clasped the wretched man or woman in a deadly embrace. Presently the lacerated body was released, only to fall into an abyss below, in which an arrangement of vertical spear points and knife-armed wheels completed the horrible work of secret destruction.

MALE AND FEMALE COSTUMES.

The Church of St. Sebald is an ancient edifice, partly dating from the tenth and partly from the fourteenth century. In the centre of the choir stands the "tomb of sainted Sebald." Above the coffer containing the relics, delicate pillars uphold three canopies of bronze. Reliefs, representing the charitable deeds and miracles of the saint, cover the coffer. About the canopy are figures of the twelve apostles and the fathers of the Church. Above, an infant Christ holds in His hand a globe. Some seventy tiny figures, realistic and imaginary, are worked into the fretted borders and interlacings of the design. At the east end, in a niche facing the altar, is an admirable statue of the artist, Peter Vischer, who executed this wonderful and elaborate piece of workmanship. It represents him in his mason's apron, and with a chisel in his hand.

He was miserably paid for his work, and the inscription records that he did it "for the praise of God Almighty alone, and the honor of St. Sebald, Prince of Heaven, by the aid of pious persons, paid by their voluntary contributions." Twelve snails and four dolphins at the corners form the curiously fantastic base of the shrine, on which Peter Vischer and his five sons worked for fifteen years in the golden days of Nuremberg art.

Legends affirm that Sebald was the son of a Danish king. He was educated at Paris, where he became deeply impressed with the uncertainty

of all worldly things. He married the lovely daughter of Dagobert, the king; but left her, with her own consent, the day after their wedding, and withdrew to a wood, where he lived a hermit's life for fifteen years, and worked for his bread. One day he started off to Rome, obtained authority from the Pope to preach, wandered through the country, and at last settled down in a wood near Nuremberg, where he worked many miracles, some of which are recorded in the bronze carvings on his monument.

Once at Christmas-time he came into a cartwright's house, and besought him to light a fire; but wood was scarce, and the cartwright refused. "Fetch me an icicle from the roof, and lay it on the hearth," he said to the wife. She did so, and the icicle burst into a blaze. "Now go buy me fish at the market," he said to the astonished cartwright. "I obey," he answered, "for all that the lord of Nuremberg has proclaimed that any one caught in the act of buying or selling fish this day shall have his eyes put out." So he went, and being taken, had his eyes put out by the tyrant. "It is Heaven's visitation on you for your inhospitality," said Sebald when he returned; and then he healed him with a touch, and added, "Now go back to the market." He went accordingly; so the people saw and believed, and glorified God and St. Sebald.

STREET SCENE.

It is also recorded, among many other legends, that when Sebald's last hour drew nigh he commanded that, after his death, his body should be laid on a cart drawn by wild oxen, and buried on the spot where they should halt. They halted in front of a little wooden chapel, said to have been founded by St. Boniface. There St. Sebald was buried, and there, not long afterward, when the chapel was burnt down, the great church was erected, and dedicated to him.

Grotesque as these old stories are—and they are all favorite subjects with the old German artists—they clearly show that the man in whose honor such a memorial as that glorious church was built, must surely have been a hero in his way. The parsonage of St. Sebald's Church contains the beautiful oriel window alluded to in Longfellow's well-known poem.

An experienced French traveler has declared that there is no place in which one can live better and cheaper than in Brussels. The cleanness of the city is proverbial. It is said that every day the mistress of a house passes her fingers over the furniture, and if there be found a speck of dust the careless housemaid is dismissed. On Saturdays, walls, pass-

QUAINT OLD BAVARIAN BURGOMASTER.

ages, and staircases are thoroughly cleansed, and the exterior of the house is washed. The Frenchman has probably overstated the elaborate purifications which are supposed to take place, but it is certain that he has not entirely misrepresented the neatness and order of the streets and houses of the better class.

VIEWS IN THE CITY OF BRUSSELS.

1, Hall of Justice; 2, Monument of Counts Egmont and Horn; 3, Place de l'Eglise St. Catherine; 4, The Stock Exchange.

The people are very polite, and if you go into a shop to inquire the price of an article in the window, or only to ask the way, you are generally dismissed with thanks. The restaurants are good and many of the hotels enjoy a high reputation; the shops rival those of Paris or Vienna, and are not quite so dear. There are good theatres, in which operas and French plays are performed by first-rate companies. During the summer a band plays every afternoon in the Park, and in winter concerts are frequent. Altogether a visitor can find plenty to occupy his time, and must indeed be a misanthrope if he cannot enjoy himself in Brussels.

Bombarded with Red-hot Bullets.

The old city was surrounded by walls which sustained many a siege, the first on record having been an unsuccessful attempt to resist the attack of the first English Edward. It was bombarded by Marshal Villeroi in 1695, who made his attack in the hope of compelling William of Orange to raise the siege of Namur. Brussels suffered terribly. For thirty-six hours shells and red-hot bullets were rained upon the city, six convents and fourteen churches were burnt, and the whole of the lower town would have been destroyed had not the inhabitants stopped the fire by blowing up numerous buildings. In 1701 the French took the place. It was taken by Marlborough in 1706, and again by the French, under Marshal Saxe, in 1746. Dumouriez, at the head of the French revolutionary army, occupied it in 1792, and it was the scene of several fierce encounters between the Dutch troops and the Belgians in the revolution of 1830. Few other towns can show such a frightful record, and Brussels has certainly earned the peace she now enjoys.

Brussels contains many splendid buildings. The real architectural pre-eminence of Belgium consists in her civil or rather her municipal buildings, which surpass those of any other country. None of them are very old, which is easily accounted for. The rise of commercial enterprise in Belgium, though early, compared with other European nations, was more recent than the age of military and ecclesiastical supremacy, and men were consequently obliged to erect castles to protect their property against robbers, and churches for their religious wants, before they could think of council halls or municipal edifices.

Heroes and Martyrs.

Here, in 1568, Counts Egmont and Horn were executed, together with twenty-three other nobles, by command of the Duke of Alva. A monument, removed in recent times and re-erected in front of the Palace of the Duke of Arenberg, formerly the residence of Count Egmont, marked the

SCENES IN THE MARKET-PLACE AT LIEGE.

site of the scaffold. Egmont was one of the bravest and most honorable men of his age. He refused to follow the example of William the Silent, who escaped while there was time. After an imprisonment at Ghent and Brussels, he died a martyr to the cause of liberty. His life and death furnished Goethe and Schiller with materials for two noble tragedies, which have done much to revive in modern Europe the fame of their subject.

Picturesque City of Liège.

Liège was a place of some importance in the time of the Emperor Charlemagne, who conferred many privileges upon the inhabitants. During the Middle Ages it was the seat of an independent government, under its bishop, although the neighboring princes, especially the Kings of France and the Dukes of Burgundy, often interfered with the affairs of the city, and on several occasions took forcible possession of it. Readers of Sir Walter Scott's story, "Quentin Durward," will recall many events narrated in connection with Liège, especially the murder of the bishop and the death of William de la Marck, who was for many years the scourge of the district.

The situation of Liège is far more striking than that of any other large town in Belgium. The valley of the Meuse is surrounded by hills, on some of which the upper part of the city is built. Five bridges cross the river, and the views from some of them are very fine. Unfortunately for the appearance of the place, the tall chimneys of the manufactories produce a good deal of smoke, and the proximity of the coal mines gives an air of untidiness to the scenery, and produces the black mud of the street in rainy weather, and the equally disagreeable black dust when it is dry and windy. But as the manufactories and the coal mines are the source of the city's wealth and prosperity, the people tolerate any inconvenience arising from them with becoming philosophy. After all, Liège is not a bad place to live in, and the pleasant neighborhood enables the citizens to escape without much difficulty from dirty streets into open fields or leafy woods.

Imposing Old Buildings.

St. Jacques' Church is a good specimen of Gothic architecture. The ornamentation of the arches is exceedingly elaborate, and the vaulting is gorgeously colored. The choir has some well-executed carving in stone, and windows filled with stained-glass of the sixteenth century. The north transept is considerably longer than the south, and in a comparatively small building this is very observable.

The most important and interesting building in Liège is the Palace of

HISTORIC CITY OF COPENHAGEN.

justice, almost in the centre of the city, erected in the early part of the sixteenth century by Cardinal de la Marck. The palace was seriously injured by fire in 1737, but the damaged part was rebuilt, and the whole has been carefully restored. The interior quadrangle is surrounded by an arcade, supported by sixty short columns, with very elaborate capitals, carved with grotesque figures and foliage. The groining is of blue limestone, the intervening spaces being filled with brick, and affording a pleasing appearance.

The Meuse is navigable for many miles above Liège, and also permits of communication with the sea for small vessels, which find a convenient harbor in the Bassin de Commerce, or are safely moored at the quays lining the river in its course through the city. The Park and a small zoological garden, abut on the river, which adds greatly to their attractiveness. There is also a botanical garden, well laid out, and containing many fine plants. Several squares and Places contrast agreeably with the narrow streets, and afford space for the erection of statues. Near the Exchange there is a fountain of some artistic merit, representing the Three Graces.

The Interesting City of Copenhagen.

Turning now to the third kingdom of the Scandinavian group, the little country of Denmark, which (as Sir John Lubbock remarks) occupies a far larger space in history than on the map of Europe, we find its capital city, Copenhagen, situated on the island of Zealand beside the chief entrance to the Baltic Sea.

The city sustained a year's siege in 1535 and 1536, when Christian III. was fighting for the vacant throne of Denmark. Horrible scenes were then witnessed in Copenhagen; the vilest food was eaten, numbers fell dead from starvation in the streets, and the soldiers, unrestrained, robbed and murdered with impunity. Another memorable siege took place in 1658–60, when Charles Gustavus of Sweden unsuccessfully beleaguered it. On the first Good Friday in the present century occurred the memorable sea-fight in the roadstead near Copenhagen, when, as Campbell's war song has it—

"To battle fierce came forth
All the might of Denmark's crown."

Denmark had allied herself with Sweden, Russia, and Prussia to oppose the "Right of Search" claimed by Great Britain. A fleet under Sir Hyde Parker, with Nelson as second in command, was sent to the Baltic, the passage of the Sound was forced, and in front of Copenhagen, in spite of shoals and sand-banks, batteries, and the Danish navy, and obstacles of

every kind, the battle commenced. It was one of the most desperate engagements ever seen in Northern Europe; Nelson himself declared that he had never been engaged in a more terrible struggle. By persisting in the fight in disobedience to superior orders he burnt or sank a large number of the Danish vessels, and took possession of the remainder.

Frightful Havoc by the English Fleet.

Six years afterward the English Government professed to have certain information that the Danish fleet, which had been renewed, was about to be put at the disposal of Napoleon. The Danes were asked to hand over their fleet to England, but refused. Accordingly a fleet under Gambier and an army under Lord Cathcart were sent to Copenhagen, and, as all attempts at negotiation proved fruitless, the city was assailed by land and sea. For three days and nights the bombardment was kept up, until the University buildings, the principal church, and numerous other edifices, including more than three hundred houses of the citizens, were destroyed, and hundreds of others more or less damaged. A little girl sitting at work at her bedroom window, and a mother nursing her baby at a street-door, were the first victims of the English fire. In repulsing the Danish troops, Sir Arthur Wellesley, afterward Duke of Wellington, distinguished himself.

At length the British army was admitted into the citadel; the stores and ammunition were carried to the English ships, and the whole Danish fleet was brought away in triumph. The destruction of Danish commerce, the bankruptcy of the State, and almost complete ruin of the people, resulted from the wars in which Denmark was now compelled to take part; but the subsequent wise development of her resources resulted in an era of renewed prosperity, which the Schleswig-Holstein troubles only temporarily interrupted.

Ravages of Plagues.

Copenhagen has of late years increased, and is still increasing in wealth and population. Although of considerable antiquity it presents, for the most part, a modern appearance, inasmuch as sieges and bombardments and numerous extensive conflagrations, which have ravaged it from time to time, have played havoc with its old buildings. The city has to a large extent overcome the evil repute for unhealthiness which once attached to it. Its past record is certainly rather black; in 1711 it lost 22,500 inhabitants by the plague, and in 1853 the cholera carried off 4,700. But now, in spite of the low level of the ground, proper sanitary arrangements have been made, and an ample supply of good water is obtained from artesian wells.

Copenhagen is not an architecturally imposing city, but its main streets present a pleasing, animated appearance, and are lined with large, many-

NATIVE OF KAMCHATKA.

windowed houses. It contains four royal palaces, and numerous public buildings devoted to art, science, and philanthropy. It is well provided

with avenues of trees, especially where, on the landward side, the ramparts, which had a circuit of five miles, have been demolished to make way for new streets and squares and pleasantly-planted promenades. Toward the sea the citadel and forts still defend the approach to the city, and between the citadel and the sea runs a fine promenade and drive.

A Noted Museum.

The Museum of Northern Antiquities is a marvelous collection. No other country possesses so complete a series of objects illustrating the consecutive stages of development reached by its inhabitants in their progress from a savage to a civilized condition. There are upwards of 40,000 articles, and as the Government give full value for everything found, the collection is constantly increasing. The Stone, Bronze, Iron, Mediæval, and Renaissance periods are separately and profusely illustrated. Here are oyster-shells and other objects from pre-historic dust-heaps, rough implements of stone found on the coast, and more polished stone tools and amber ornaments of a somewhat later date.

Then come bronze tools, arms and war-trumpets, and knives. The Iron Age, besides iron implements, brings in a multiplicity of articles, silver and glass ware, woolen fabrics, boats, and alphabetical signs. The later Iron Age, the time of the Vikings, produces handsome heavy swords and battle-axes, horse-trappings, and other things too numerous to hint at. The noted Runic stones now appear. Here is a reliquary containing the arm of St. Olaf, King of Norway, who fell at Stiklestad in 1030, the said reliquary having been made, as the inscription testifies, for the Princess Helen of Denmark, grandniece of Canute the Great. One of the special treasures of the collection is the celebrated Dagmar Cross found in the tomb of Queen Margareta Dagmar, the wife of Waldemar II., and the idol of Denmark. Old ballads tell how in 1205 the victorious Waldemar wedded the fair daughter of the King of Bohemia, how by her grace and kindly deeds she won the hearts of her subjects, and how after six short years of happy wedded life she died.

More than six centuries have passed since then, but less than a century ago farmers and peasants were still wont to cry "Dagmar, hail!" as they passed the good queen's grave. The cross is of enamel and of Byzantine workmanship. Amongst the presents to the Princess Alexandra on her marriage with the Prince of Wales, was an exact copy of this cross, given by King Frederick VII. This model is made to open, and contains a fragment of silk from the cushion found under the head of Canute in his tomb, and an alleged fragment of the true cross.

As Mr. Du Chaillu justly remarks, the Norwegian has under a rough exterior a most kindly heart; and, though outwardly cold, he is easily moved to the other extreme. Kind to his family and dependents, and merciful to his beast, he must be known to be appreciated. He is pious, sometimes even to bigotry, and in the character of both men and women there is a vein of quietness and pensiveness which fit in well the stern aspects of nature around them. Parents are affectionate to their children, children exceedingly respectful to their parents, and members of families well disposed towards each other, though, unlike the Germans, the Norwegian is not apt to carry his heart on his sleeve.

Quarrels are rare, and crime is less frequent than in any other part of Europe, where the distance from authority is as great. Wives and husbands usually agree well, though, unhappily, owing to the licentious facilities which the law affords for divorce—a mere desire to part being sufficient cause—separations are more frequent than in the rest of Protestant Europe.

The farmers are very clever at all kinds of handicraft. When one wants to build a house, or make any addition to his farm, he goes to the forest and cuts the trees, and is his own carpenter. He may also be a tanner harness-maker, blacksmith, shoemaker and miller; along the coast he can build boats and ships, and is an expert fisherman; he is also a maker of musical instruments and furniture, a goldsmith and jeweller. As a hunter in the mountains he pursues the bear, the wild reindeer, or the ptarmigan.

Character of the Danes.

Much the same characterization applies to the Danes, though the peasants are neither so independent—their freedom being of a later date than that of the Norwegians—nor quite so hospitable or so wealthy, though their lands are better and their markets more secure. The Danes are, as a rule, a quiet people, extremely touchy, like all their race, on questions of patriotism, and apt to value their foreign visitor in a direct ratio to his abnegation of the critical faculty. The national songs are all very patriotic, and the novelists are seldom satirical on Denmark, though sometimes they venture to criticise the Danes as individuals. On the whole, however, the Danes—in spite of these foibles and a German tendency to be over-inquisitive—are the most agreeable of the Scandinavians among whom to live, though the Norwegians are the most picturesque and the most pleasant among whom to travel.

Peculiarities of the Swedes.

The Swedes are at first very attractive. They are exceedingly complaisant, and the "lower orders" are in some respects like the Celts, in

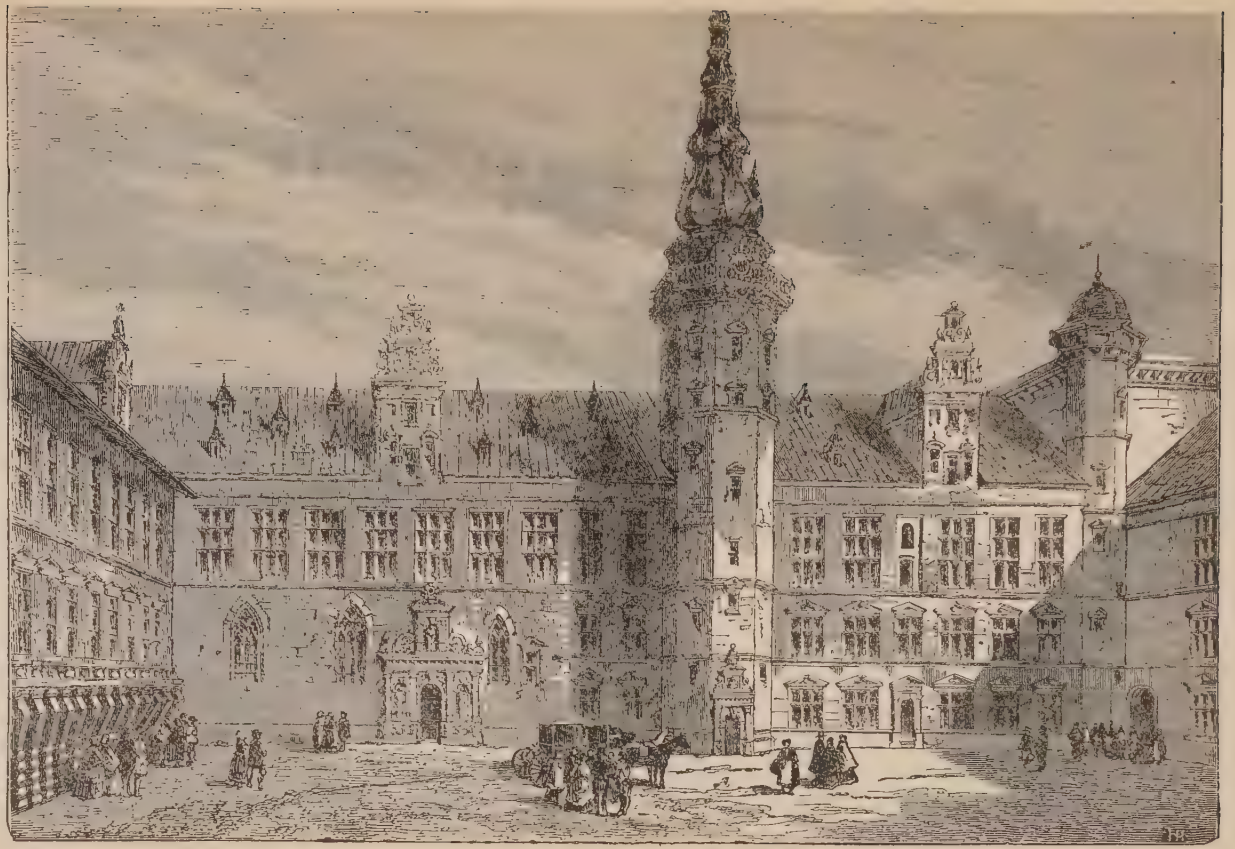
TREMENDOUS ERUPTION OF THE GREAT GEYSER OF ICELAND.

being all things to all men. But they do not improve on longer acquaintance, and though far from disagreeable, compared with the other branches of the family, they are apt to develop weaknesses which are not quite so attractive. If one could accept the Danes' estimate of their neighbor's character, the Swedes are a drunken, quarrelsome, and far from moral race. Happily, it is not necessary to adopt this method, though perhaps, as the laborers who come to Denmark in search of work are mostly from the poor provinces of Scania and Smaaland, they are not the best examples of their nationality. It is, however, admitted that in cities the manners of the Swedes have been tinctured by the French fashions which came in with the present line of kings, and with the morals which are usually associated with France. On so delicate a theme one need not enlarge; but the facts are indisputable. In the country districts matters are not much better, and in Denmark it is often noticed that when a young Dane marries a Swedish girl he is spoken of as not having done so well for his future happiness as he might. Yet the Swedish ladies are undeniably pleasant, and, when they do not smoke cigarettes and in other respects display their "emancipation," are as simple-mannered and modest as their kinswomen on the southern side of the Sound.

The Inhabitants of Iceland.

The Icelanders, again, have characteristics somewhat different from those of their kinsfolk in Sweden, Denmark, and Norway, which may be owing to their physical surroundings and the isolation which they have maintained for a thousand years. They are unquestionably endowed with an excellent opinion of themselves, and "their island grand." But, as usual, those who have ventured to pronounce a judgment on their mental and social traits differ widely, appreciations of national character depending, as Sir Richard Burton puts it, greatly upon "the casual circumstances which encounter and environ the traveler." One set of visitors agree in describing them as gloomy, silent, ungenial, morose, stubborn, eternally suspicious, snappish, utterly deficient in enterprise, doing nothing but what necessity compels, not very hospitable, greedy of gain, unscrupulous, and uncleanly in their persons compared with the other Scandinavians.

In contrast with this dark-colored picture, more kindly and perhaps not less truthful visitors enlarge upon their calm and dignified, their orderly and law-abiding character, and their undoubted intelligence, sharp-wittedness, and that dry humor, which obtains for them in Denmark much the same reputation as originators of good sayings and humorous anecdotes as the Irish hold—or held—in English-speaking countries.



ROYAL PALACE AT KRONBERG

CHAPTER XII.

WONDERS OF ASTRONOMY

Vastness of Space—Curious Sun Spots—Amazing Distance and Bulk of the Sun—Brilliant Constellations—Distances of the Fixed Stars—Falling Fire-Balls—Mysterious Nebulæ—Singular Freaks of Comets—The Immense Comet of 1843—The Earth Passing Through the Tail of a Comet.

WISE man only wonders once in his life, but that is always; the fool never. The education of the wise man begins with wonder, and ends with devout admiration; but the fool "doth not consider," and shuts his eyes to things around him. Strictly speaking, wonder is not a vulgar nor a foolish attribute. All wonder, said a dogmatic writer, is but the effect of novelty upon ignorance. Nay, we answer, you cannot be ignorant if you would feel the greatest effect of wonder. Thus it is that, Coleridge, a most learned man, declares, "in wonder all philosophy began, in wonder it ends, and admiration fills the interspace; but if the first wonder is the offspring of ignorance, the last is the parent of adoration."

Let us consider shortly one of the commonest wonders about us—space. Gaze up into the sky from off the page you are reading, and try to pierce as far as your eye can reach, and then as far as your mind can conceive. Our globe—the speck of dust on which we stand—is eight thousand miles in diameter, or twenty-four thousand miles in circumference; but with its sun, planets, and satellites, and those "less intelligible orbs called comets," it occupies space, which, calculated only by the uttermost bound of the orbit of Uranus—and we know that beyond Uranus there are worlds—is not less than three thousand six hundred millions of miles in diameter. The mind, it has well been said, fails to comprehend so vast an area. Some faint idea of this, says an eloquent writer, can be obtained from the fact that, if the swiftest racehorse ever known had begun to traverse it at full speed at the time of the birth of Moses, or nearly four thousand years ago, he would as yet have accomplished only half his journey!

The sun, which so many have worshiped, and which is, humanly speaking, the source of life to us all, is another perpetual wonder. Its circumference is about two million seven hundred and seventy thousand

miles. Its distance from the earth is so great that a railway train moving at thirty-two miles per hour would take three millions of hours, or three hundred and forty-two years and three months, to travel from us to the sun, supposing that it could travel incessantly night and day during that time. A cannon ball, moving fifty times faster than such a train, would expend seven years in reaching it. To make a globe like the sun it would take one million four hundred thousand globes like the earth rolled into one! Or, to make these facts simpler, and yet more stupendous, the bulk of the sun is five hundred times greater than the

THE SUN AND ITS WONDERFUL SPOTS.

aggregate bulk of all the other bodies of the solar system of which night only reveals to us a small part—that which appears above our hemisphere, and above our particular stand-point. The centre of the sun is a dark mass covered with a garment of flame. But in this luminous matter there are vast rents. We talk of spots in the sun; spots indeed! the space occupied or laid bare by the principal spot is nine hundred and twenty-eight million square geographical miles. Arago, by a physical test, proved that this garment of flame, this luminous matter, must be gaseous; so that the sun floats in an ocean of flame, and this is so powerful that the strongest blast furnace yet

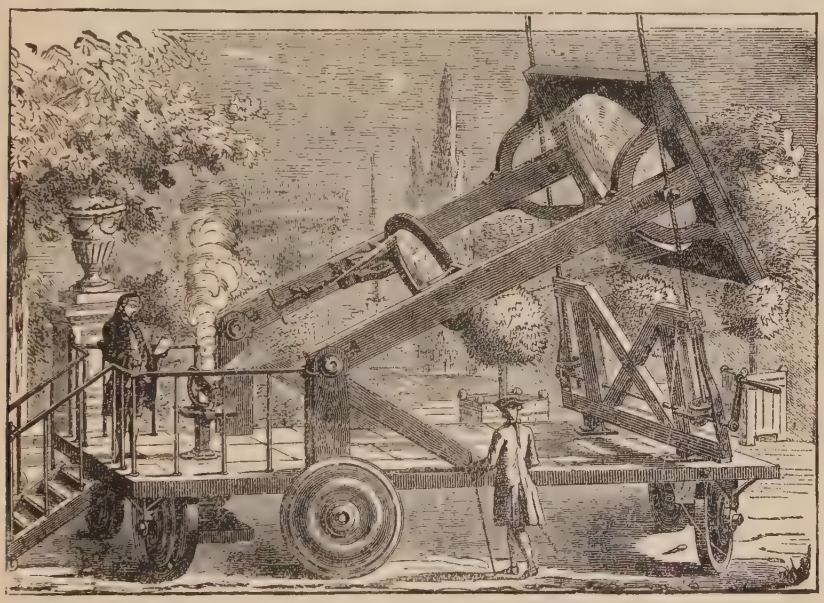
ignited by man, at its highest power, is seven times weaker than the sun's heat at its surface. If the heat be electric, how great is the wonder! being dispersed over space so great that the earth's surface, at a distance of ninety-five million miles, notwithstanding the alternation of night, receives in a year sufficient, if uniformly diffused, to liquefy a crust of ice one hundred feet in thickness.

When we come to examine the sun by the aid of a telescope, we find that all parts of the surface do not give out light to the same extent, and that there are certain places on it darker, and some brighter, than the remainder of the disc. The former are called sunspots, the latter faculæ, which are always associated with spots.

The first person who examined sunspots closely was the illustrious Galileo, who proceeded to determine from them the sun's velocity of rotation on his axis; for he perceived that they moved across the sun's body. However, since his time, it has been shown that the spots have a motion of their own; those at the sun's equator moving faster than those at his poles; so that observations on the spots alone cannot tell us the rapidity of the revolution of the sun's entire mass. It has also been noticed that the number of these spots visible at one time does not remain the same from year to year, and, in fact, that about every ten years there is an epoch at which they are especially abundant. General Sabine has pointed out that these periods of frequency of sunspots are coincident with the periods of greatest magnetic disturbance on our own globe. Accordingly, we see that there exists a distinct and close connection between variations in the appearance of the sun, and changes in the physical constitution of our earth.

The interesting question now arises: what are the sunspots? and what is their cause? The very careful investigations of science have thrown much light upon this interesting subject. One of the most remarkable features of the spots is, that their central portion is darker than the edge; and accordingly, nearly a century ago, it was suggested that they were pits in an envelope which surrounded the sun. The results of later experiments seem to confirm this idea. They further go to show that the faculæ, or bright patches, are really of the nature of luminous clouds, placed, relatively to the sun, above the level of the spots. These faculæ are generally seen behind the spot, a position which they would necessarily assume if they were thrown up to a greater distance from his centre, and would move more slowly. The same observations have shown that spots are produced below the level of the sun's photosphere, while the faculæ are suspended in that medium. If this be admitted, it seems to follow that the two phenomena are effects of a vertical circulation in the gaseous matter

surrounding the sun, the faculæ being produced when a portion somewhat denser than the medium in which it is suspended is raised into or above the photosphere, while spots are observed when such a mass is below the photospheric stratum. In fact, one of our most diligent sun observers has seen a faculæ, apparently in the act of sinking, lose its brightness and gradually pass into a spot, its form remaining unchanged during the process. There is a shorter period of twenty months' duration observable in the recurrence of spots, and this coincides with the periods of recurrence of the same relative position of Venus as regards the sun and the earth. A similar relation between Jupiter and the sun is also indicated. These discoveries are of the very greatest



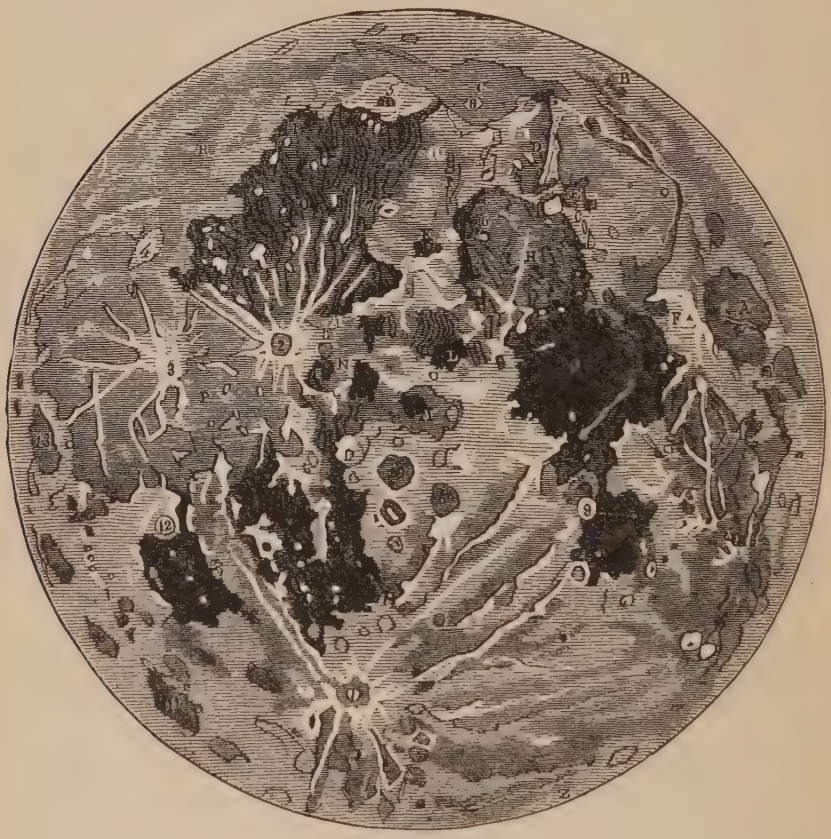
BERNIERES' IMMENSE BURNING-GLASS.

interest, as they show us how intimately all the bodies of our solar system are related to each other, and how the slightest change in any one of them exerts a definite influence on the condition of the entire system, despite the great magnitude and the distance from each other of the bodies which compose it.

The burning-glass has long been used for the purpose of producing combustion. The rays of the sun are concentrated by means of a concave lens, and with a lens of sufficient power all combustible substances can be ignited.

The curious in figures, and readers who have a higher aim, will be interested to know that a railway train at the average speed of thirty

miles an hour, continuously maintained, would arrive at the moon in eleven months, but would not reach the sun in less than three hundred and fifty-two years. When arrived, it would be rather more than a year and a half in reaching the sun's centre; three years and a quarter in passing through the sun, supposing it was tunnelled through, and ten years and one-eighth in going round it. How great these dimensions are, may be conceived from the statement, that the same train would



TELESCOPIC VIEW OF THE MOON.

attain the centre of the earth in five days and a half, pass through it in eleven days, and go round it in thirty-seven days.

It seems strange to say that the geography of the moon, or at least of much of that portion of her surface which is presented to our view, is better known than that of many parts of our own earth; and yet this is quite true. Our telescopes are of such power that if there were an object on the moon's surface as large as the Capitol at Washington,

they would infallibly reveal it to us. Most elaborate maps of the moon have been made, and it has been satisfactorily proven that she herself is a solid body, probably composed of rocks much like those on our planet, but not provided either with water or with any trace of an atmosphere. It presents the appearance of a burnt globe or body of volcanic matter.

Persons who have the opportunity of looking at the heavens through a telescope of the greatest power, should always ask to be shown a "globular cluster." There is no object in the sky which can compare with these systems in respect to the sublimity of the ideas which their contemplation evokes. There are about a dozen of these wonderful clusters of stars known to astronomers. One or two of these clusters can be faintly seen with the naked eye on a very dark night, as a minute spot of light on the black sky. The others are totally invisible without the aid of a telescope.

These bodies, or rather congregations of bodies, are small in apparent size; that is to say, they are not nearly so large as the apparent magnitude of the moon. They are round in outline, but they are composed of nothing else than myriads of stars clustered together. To give an idea of the enormous multitude of minute stars which compose one of these bodies, the following illustration suggested itself to an observer who had examined several of these objects through one of the finest telescopes in the world: take a piece of writing-paper cut into a circle about three inches in diameter, and shake a pepper-castor held over the centre of this piece of paper until the pepper is piled up in the middle so as to form a heap, gradually getting thinner at a distance from the centre, and finally ending with separate grains near the edge. Now, if we imagine each grain turned into a brilliant star, and the piece of white paper darkened into a black background, we get some idea of the marvelous way in which the stars are crowded together.

Herschel has calculated that in some of these clusters there are more than two thousand stars visible; and when it is remembered that each star is brilliant, like our sun, we see how dazzling must be the splendor amid such a host of luminaries. Astronomers know but little more of the nature of these clusters than what has been here described. The forces which are in action there by which these suns are held in the positions which they appear to maintain, are unknown. Some of these clusters are less dense than others.

But what may be the size of these constellated suns? We think ourselves the great ones of the universe, and that the heavens were hung with their starry lamps to give light to our night. Have we any reason for our pride? Certainly none, if we measure our importance

by our size. When compared with that our own sun is mighty. Conceive his size. Suppose that the fiery globe were hollow, and that our earth were placed at the centre; the moon could still hold on her way, though she is distant from us two hundred and forty thousand miles; and yet there would be two hundred thousand miles beyond the moon ere the shell of the sun were reached. What a mighty mass! and yet, though so great, our sun is a speck of dust compared with the very smallest of the numberless stars which twinkle so peacefully above us. The nearest star is nearly nineteen billion miles from us; and Sir. J. Herschel calculates that if a person stood upon that star and looked towards our earth, not only would our mighty sun be utterly invisible, but if the sun were so enlarged as to fit the earth's orbit—that is, instead of being eight hundred thousand miles in diameter, he were more than one hundred and eighty millions of miles in diameter—even then that stupendous orbit would be covered by a human hair held twenty-five feet from the edge, presuming the pupil of the eye were a point!

In other words, those stars which cluster to form these mysterious balls cannot be less, and they may be infinitely greater, than luminous orbs having diameters of one hundred and eighty million of miles; orbs compared with which our earth is as an orange to the dome of our national Capitol; and yet there are thousands of such suns in one of these faintly luminous patches, scarcely visible to the eye!

ASTOUNDING DISTANCES OF THE FIXED STARS.

It requires a little consideration to estimate what the words nineteen billion miles really mean. A billion contains one thousand millions, and we shall endeavor to convey an idea of this amount by a simple illustration. Supposing our great forefather Adam had commenced to count as quickly as he could, and that when his life was ended his son commenced to count, taking up from the number at which Adam left off, and spent his whole life, day and night, counting as fast as he could, and supposing that at his death he enjoined on his heirs an eternity of counting, and that they had continued doing so up to the present moment, their united efforts would not yet have reached the amount of nineteen billions, the distance in miles from our globe of the nearest fixed star!

Such, then, is the distance of the nearest fixed star. We cannot grasp it in our imagination, nor are we more successful if we try to make a map. Knowing, however, the distance of the nearest star, what can we say of the distance of the farthest of those that are visible? Here precise knowledge fails us. We can, indeed, grope after the truth, and make guesses of greater or less probability. We believe that it is, at all events, hundreds of times as great as the shorter distance.

Meteors are always associated with stars, and, in fact, are shooting stars in common phraseology. On the seventh of October, 1868, one of the most remarkable fire-balls of which any record exists, was seen from three points so far distant from each other as Paris, Rouen, and London. From ten to fifteen minutes before twelve, the moon and the stars shining brightly, the atmosphere being frosty and cloudless, and scarcely a breath of air stirring, thousands of people between and around the points mentioned above, were startled by a sudden blaze of light in the heavens. The brightness resembled that of the magnesium light, and not only did the moon and stars grow dim in its lustre, but many of the eye-witnesses were so dazzled by the glare, that they could not observe the phenomenon with sufficient accuracy to give an intelligible account of it. Others, with more presence of mind, have recorded their observations. As the meteor floated slowly across the heavens (slowly when judged by the eye) in a direction from north to south, its appearance changed from that of an immense globe of white light to a comet-like form, the tail having various colors, changing from green through several shades of red to blue or purple. It exploded with a sound resembling two gunshots, audible at Paris and Rouen. The probability is that it fell at La Varenne, St. Hilaire, near the Vincennes railway, and, if so, has been identified with a meteoric stone found there and measuring about thirty-nine inches in length, by seven or eight inches in thickness.

History abounds in similar records, but it has not often been possible to combine the simultaneous observations made in distant places; and it may be doubted if the elevation would always admit of a fire-ball being observed at points so distant from each other as in this instance. In 1768, a cloud was seen to explode over the village of Lucé on the Maine, and the sound was heard ten miles distant. In 1798, a large fire-ball was seen near Benares, in India, and at several places, extending to a distance of fifteen miles. In 1803, a fiery globe of extraordinary brilliance was seen over the town of L'Aigle, in Normandy, and at such an elevation that the inhabitants of two hamlets, a league distant from each other, saw it at the same time. It burst in a shower of meteoric stones.

Fire-balls are most often seen a day or two before, or a day or two after, the recognized dates of those wonderful displays of asteroids which are now known to be a regularly recurring phenomenon at two periods of the year, one of these being in November. The probability is that all these appearances admit of one and the same explanation, namely, that they are masses of matter revolving round the sun, which come into contact with the earth, and take fire on entering its atmos-

A MARVELOUS SHOWER OF METEORS.

phere. The smaller particles are consumed in passing through the atmosphere, and fall to the earth unperceived, as small dust; while the larger reach the ground in great masses, and often penetrate to a considerable depth.

An observer, gifted with the keenest sight, would be utterly unable to discover, without the aid of a telescope, the slightest trace of the wonderful phenomenon known as globes of gas in the sky. He might weary himself with staring even at the exact spot in the heavens where one of these objects is situated, but not the faintest glimmer would reward his efforts. He must call in the aid of that indispensable requisite to the astronomer—the telescope—to assist him. And even a telescope of such dimensions as is usually seen would be of no use; it requires a telescope of very considerable power to show these objects at all. To show them well, tasks the utmost powers of a very first-rate instrument, such as is seldom met with. To reveal, however, the full beauty of their marvelous bodies, to exhibit them with brilliancy and clearness sufficient to show the amount of detail with which they are figured in the engravings, required the whole power of the great instrument of the Herschels, or the colossal telescope of Lord Rosse.

Let us suppose that an observer who enjoys the privilege of looking at the heavens through an instrument such as that last mentioned, directs the telescope on one of these bodies. At first, perhaps, he has a little difficulty in distinguishing it from a star, but when a higher magnifier is applied at the eye end of the telescope the difference is wonderful. He sees a very minute round ball, very bright, and glowing with light of a blue color. If he turn to another of these curious objects he will see a ball, slightly different perhaps in size, or brilliancy, or color, perhaps with very faint markings upon it, but he will find the general features in all these bodies to be the same. The observer can clearly see that this ball he is looking at is not made up of stars, and then the idea gradually bursts upon him that the object must be a globe of gas.

That this is the real nature of these objects recent discoveries have placed beyond all doubt. As we recover our astonishment at this wonder, a crowd of questions occur to us. How far off is this globe we are gazing at? All we know is, that its distance from the earth must be incalculably great. This question science cannot answer with accuracy. It is probably far more remote than most of the stars which we can see without a telescope, but even of this we cannot be quite sure. How large is it? To this also we must plead our ignorance. Knowing, however, that its distance is enormously great, we very naturally infer that it must be proportionately huge, since we are able to

see it at all. But supposing we take the vast circle which the earth describes around the sun, a circle, the diameter of which is nearly two hundred millions of miles, and supposing that a globe conceived so large that it would only just pass through this circle, then we know for certain that the globe of nebulæ must far exceed this imaginary globe in bulk.

How is it that the gas is seen, and what renders it luminous? Gases, as we know them on this earth, are transparent or invisible; how is it, then, that this globe, if it be of gas, emits this lovely blue light? To this we answer that the gas is heated so hot that it becomes luminous, just as iron when heated sufficiently gives out light. Difficult, indeed it is to form a notion of these wonderful bodies. They are utterly different from the sun, from the moon, from the planets which, relatively speaking, are quite near to us. There is no terrestrial object to which we could refer as an illustration. They are peculiar and unique bodies in the universe, and many have supposed them to be the material out of which new worlds are evolved.

CLUSTERS OF NEBULÆ.

There are in the heavens about twelve of these curious objects, varying somewhat in size and also in shape and color, but the general features in all are pretty much what we have briefly described. They are denominated, along with many other curious celestial bodies, by the word nebulæ; but, to distinguish them from the great majority of the nebulæ, we call them planetary nebulæ. It must not, however, be inferred that they are connected with the planets; the only reason why this name is given is that, seen through a telescope, both the planets and the globes of gas present a sharp, round outline. Our illustration will give the reader some idea of their shape and appearance.

Among the chief marvels of astronomy must be mentioned comets. These wonderful appearances have frequently happened within historic periods, but not so often as to diminish the admiration and amazement with which each new arrival is greeted. A comet consists of a vast mass of gaseous matter surrounding a central portion which appears to be of denser material, and is called the nucleus. This vast mass of luminous gas generally assumes the form of a tail; but this is not always nor even generally the case, as a comet sometimes is nearly round, and sometimes it does not even present the nucleus, and in that case it appears like a round ball of luminous gas.

Though comets large enough to be conspicuous to the naked eye are only seen at intervals of many years, it is well known to astronomers that hardly a year passes without one or more small comets being brought within reach of our telescopes. The earth and the planets are retained in their orbits by the attraction of the sun, and it is the same great power which draws the comets within reach of our eyes and telescopes. The planets move around the sun very nearly in circles; many comets likewise revolve around the sun, but not in circles; their paths are oval or elliptical, and the sun is not at the centre of the ellipse, but near to one end of it, in a point which is known as the focus of the ellipse. These ellipses are generally very long, so that the comet takes a great period of time to travel round in its path. The one which takes the shortest journey spends three years in performing it. There are some comets that, after passing near the sun in their elliptical orbit, retreat to the other end of their ellipse, which is at such a prodigious distance that thousands of years must elapse ere they revisit the neighborhood of the sun again. One of these was a great comet which appeared in the year 1844. Its orbit was calculated, and it was found that after leaving the sun, it would retreat into space to a distance equal to four thousand times the distance of the earth from the sun, and that ere it returned again, it would have performed a stupendous journey, which would have taken it not less than a hundred thousand years to accomplish.

But there are many comets which astronomers can prove will never again return to the neighborhood of the sun. They come from the remote depths of space, at a stupendous distance from the sun and all his train of planets; on beginning to feel the effect of his attraction they move towards our system, and at length they come sufficiently near to it to be visible through a telescope, and as surely as they do so, so surely are they detected by the keen eyes of some of the numerous astronomers who are always on the watch for these bodies. They come on nearer to the sun, till their pace exceeds that of the earth itself, but they do not plunge headlong into him. Notwithstanding the vast powers of his attraction, they just whirl round the mighty luminary. Exposed to the fearful heat of his beams, the tail is developed to an enormous length. By some unknown law, which Professor Tyndall has recently sought to explain in a very ingenious manner, the tail stands out away from the sun as the comet whirls around it; then, after having passed the sun, the comet retreats again. It gradually becomes fainter, gradually is lost sight of by our telescopes, gradually plunges again into the depths of space, never again to revisit our sun, never again to be beheld by human eye. Such is the history of many

of the great comets which at different times have struck terror into the inhabitants of the earth—they have retreated never more to return.

The great comet of 1843 was one of the most remarkable ever observed. The nucleus of this was so brilliant that it could be seen with the greatest ease in full daylight. This comet is remarkable for coming nearer to the sun than any other of these bodies whose paths have

THE GREAT COMET OF 1843.

been determined with accuracy. It was found to approach the sun to within a distance of thirty-three thousand miles. It is easy to calculate, though not easy to imagine, what must be the heat in such a position. It would doubtless be many hundred times greater than the temperature of molten iron.

Speculations have often been indulged in as to the possibility of a

collision between the earth and a comet. In June, 1861, M. Liais, the celebrated astronomer at Rio Janeiro, from observations which he had made of the great comet of that year, which had not as yet become visible in Europe, became convinced there was a great likelihood that the earth would come in contact with one of the tails of the comet; and M. Liais proved beyond question, that on the nineteenth of June, 1861, the earth really did pass through one of the comet's tails, the moment of contact being twelve minutes past six in the morning; and the earth must have been wholly immersed in the tail for about four hours. Yet it had no perceptible influence upon the weather—a very remarkable fact, adding reason to suppose that cometary matter is some millions of times rarer than our atmosphere. This phenomenon had never before occurred, according to the dictum of Arago, the astronomer. Lord Wrottesley, in 1860, remarked that when the comet of Encke returned, its motion was continually accelerated, and it was consequently drawn nearer to the sun. The final result will be, that after the lapse of ages, this comet will fall into the sun; this body, a mere hazy cloud, continually flickering, as it were, like a celestial moth round the great luminary, is at some distant period destined to be mercilessly consumed. Other astronomers differ from this opinion, and consider that there is no substantial reason to suppose the sun will ever become a great consumer of comets, although it is very difficult to explain why a comet drawn with amazing velocity toward the sun, will, upon coming near and at just the point where the attraction is the greatest, suddenly sail round the great luminary and dart away in its strange flight.

THE SUBSTANCES COMPOSING THE SUN.

Our knowledge of the physical constitution of the sun has been greatly increased within the last few years by the wonderful revelations of that most powerful engine of physical research, the spectroscope. A careful analysis of the solar spectrum formed by a prism, and a comparison of it with the spectra of terrestrial elements in a state of incandescence, reveal to us the presence in the solar atmosphere of many familiar substances, such as hydrogen, and the vapors of iron, sodium and other metals. Line for line the solar spectrum agrees with the known peculiarities of elements which form constituents of our own globe, and we have the interesting fact established that the gorgeous parent of our system is, so to speak, bone of our bone and flesh of our flesh. The same powerful analysis, when extended to the stars, discloses similar results; and we are led to the inference that our own tiny globe, though such an insignificant fraction of the universe, contains, represented within its narrow bounds, all the materials of which

that gorgeous system is built up. Unfortunately the spectroscope can tell us nothing of our own satellite, though it is so much the nearest and most distinctly visible of all the orbs of heaven. Moonlight is simply reflected sunlight; and hence its spectrum is, as we should expect, but a faint reproduction of the more brilliant solar one.

The spectroscope has lately been applied successfully to those singularly beautiful phenomena which accompany a total solar eclipse, and which are generally known as the rose-colored protuberances. As soon as the sun's light is wholly cut off by the moon, cloud-like prominences of a bright roseate hue are seen projecting from its surface beyond the moon's edge; and occasionally traces of a layer of the same material are seen at their bases, which lead us to suppose that the whole sun is encompassed by a ring of this matter. Whether it is a distinct solar envelope, or only a part of the photosphere, is at present uncertain; but pending the settlement of the doubt, it has received the specific name of the chromosphere. The spectroscope shows it to consist of incandescent gas, of which hydrogen is the chief constituent; and the rose-colored protuberances are huge masses of this flaming substance, which have been hurled up into the solar atmosphere to a height, sometimes, of fifty or a hundred thousand miles above their ordinary bed.

THE GORGEOUS SOLAR HALO.

Another interesting phenomenon which appears at the time of a total eclipse is the solar corona—a great halo of light surrounding the darkened sun and stretching far out into space. This halo was at first supposed, naturally enough, to be the solar atmosphere, lighted up by the sun's rays streaming through it and imparting to it a portion of his own effulgence. But here again the spectroscope comes to our aid. It tells us the degree of pressure to which the incandescent hydrogen composing the rose-colored protuberances is subjected, and shows the impossibility of their being burdened by such an enormous atmosphere as the whole corona would represent. The progress of modern science has left little doubt as to its real nature. We have learned that the whole solar system is traversed by numberless tiny planetoids, some moving singly, others in small clusters and others in enormous groups containing countless myriads of these little units. These aërolites pursue their proper paths about the sun as truly as the largest bodies of the system, save when they get entangled in the atmosphere of our own or any of the other planets. When this is the case, the sudden checking of their enormous velocities by the resistance of the air reduces them instantly to a state of incandescence, and we see them flashing across our firmament as shooting stars, the next moment to be dissipated into vapor.

The periodical meteoric showers of August and November are caused by our orbit carrying us, at those periods of the year, right through great clusters of these aërolites. It has been estimated that not less than a hundred thousand million of them are annually caught by our atmosphere; and when we consider the comparative smallness of the ring which we traverse, we can see that the absolute number of the meteorolites belonging to our system must be something incomparably exceeding the highest flights of human calculation. In the immediate neighborhood of the sun, where his attraction exercises the most direct and potent influence, they will be found in special abundance; and it is to the fact of their existence that we must look for an explanation of the corona, and perhaps of yet greater and more interesting mysteries of our system. The corona is simply the sunlight reflected from their surfaces, as it is from the disks of the moon and planets. For a vast distance round the sun the whole firmament is powdered with them as thick as hailstones, and the reflection from them produces a continuous luminous glow, lost indeed in the overpowering brightness of ordinary sunlight, but shining out with exquisite lustre when his direct beams are cut off from us.

THE GLORY OF THE STARS.

The great distance of the stars from us prevents us from knowing almost anything whatever about their condition, except what we can infer from analogy. They hold the same place in creation that our own sun does. They are not satellites of any other body, but primary orbs, independent sources of light and heat, and probably the centres of systems not less varied and gorgeous than our own. Hence we may argue with a high degree of probability that those facts which have been ascertained concerning the general nature of the sun, hold equally true of the stars. And as for their individual peculiarities, we are for the most part equally in the dark about them also, and that for the same reason. All the stars appear to us as mere luminous specks without any perceptible magnitude. And although "one star differeth from another star in glory," though even the naked eye can detect many degrees of brilliancy among them, yet all we can infer from this is that the more brilliant ones are probably much nearer to us than the others. But there are stars which form marked exceptions to the general rule, and stand out prominently from the rest.

The existence of binary stars was discovered by Sir William Herschel toward the close of last century. It had long been noticed by astronomers as a remarkable coincidence that in several instances a pair of bright stars were found in close proximity to each other, much closer than we should have expected supposing the stars to have been scattered up

and down at random over the whole face of the heavens. Still it was never thought that this was anything more than a coincidence; it was supposed that the stars had no connection with each other, but were altogether separate bodies, which merely happened to be situated in one straight line with ourselves. But Herschel having, for some scientific purposes which it would take too long to explain, determined to make a series of minute and careful observations upon these double stars, soon found to his surprise that they were rapidly shifting their positions relatively to each other; and, in short, he was erelong led to the conclusion that the two stars were in reality situated close together, and revolving in orbits round one another. Many pairs of stars of this kind were observed and registered, while in some cases the combinations were found to consist of three stars, and even four, instead of two.

IMMENSE SUNS WITH RAINBOW COLORS.

But one of the most remarkable features about these multiple stars is that they are very frequently of different colors. In the case of the double stars the two colors are usually complementary; colors, that is, which when mixed together, in proper proportions, produce white. This one will be green and the other red, or one orange and the other blue, or one violet and the other yellow. Similarly in the triple stars we may have a blue, a red and a yellow, or a green, an orange and a violet. In a quadruple star we may have blue, green, orange and red; and so on, in endless combinations. If there be any planets in attendance upon these multiple suns, as in all probability there will be, the celestial phenomena at those planets will be of the most extraordinary character indeed, and everything that depends on these phenomena—their times and their seasons, their days and their years—will be involved in the most intricate complications.

If, indeed, any of them happened to be situated in very close proximity to one of the primaries, things with it would not be so confused. It would always revolve round the same sun, though in a very irregular and perturbed orbit; and hence its days and its years would follow each other pretty much in the natural and regular order. But its seasons will vary much both in length and temperature, and its nights, though much darker than its days, will yet differ from them far less than is the case with us. For when the primary orb sinks beneath the horizon, the secondary ones will shine out in full splendor, much smaller and more distant than the primary, but yet far exceeding in brilliancy the borrowed light of the brightest of full moons. But most of their planets, not nestled close enough beside any one of their suns, will come pretty equally under the influence of all. Take, for instance, the case of a planet in a quadruple system at a time when it happens to be about

equally distant from all its four suns. A green and a red sun are above the horizon, and when we look directly at either, its color is clear, brilliant and well-defined. But their rays meet and mingle and unite into a dazzling snowy white, which imparts to the whole landscape the pure radiant look which seems to fill the firmament on a sunny day when the ground is covered with snow. A light cloud-wreath steals over the green sun, and a faint rosy blush overspreads the face of the sky. The cloud thickens, and the rosy hue deepens into a mellow crimson.

Then the green sun sets and a blue one rises, changing the red light of the sky into a rich purple, veined here and there with pale amethyst, as a few rays from the green sun struggle through the clouds just as it sinks beneath the horizon. The purple changes into a deep gold as the blue sun is succeeded by an orange one, and the gold pales down as the red sun sinks to his rest in turn. The orange is left alone, and when it, too, sets, night comes on apace. And now the moons rise and shed their radiance on the scene. But how differently do they show from the pale uniform light that beams from our own plain satellite! Every color of the rainbow glows from their faces; in belts, in spots, in lunes, their checkered disks reflect every shade of hue that the artist's palette can produce.

The parts illumined by one sun alone reflect, more faintly than the rest, the colors of their respective orbs; those which come within the light of two or three of them will shine more brightly and with gayer combinations of colors; while in the parts on which all the four suns shine at once we find again the snowy white, so bright as to sparkle almost with the light of day. But where there are four great lights to rule the day, night will be of unfrequent occurrence and of short duration; and soon the four suns, their nocturnal course ended, begin at once to draw nigh to their rising. Pale, slender threads of red, green, blue, and orange steal out from the darkness in four quarters of the horizon; and these widen and lengthen till they mingle together at their extremities in softly shading hues of white, indigo, and gold. Brighter and broader they grow, and the gorgeous variegated belt spreads rapidly from horizon to zenith, till at last the suns have fairly risen, and their many-colored rays combine again into the dazzling white of the perfect day.

CHAPTER XIII.

WONDERS OF ASTRONOMY (CONTINUED).

Thomas Moore's Tribute to the "Angel of Light"—The Sun a Father of an Orderly Family—A Dazzling King in the Firmament—Drawing Worlds through Deserts of Space—Will the Sun Last Forever?—Wonderful Sun-Spots—Caverns in the Sun that would Swallow Ten Worlds like Ours—Terrible Convulsions—The Sun's Rotation—Mercury and Venus—Marvelous Transit of Venus—Solar Heat—The Sunlight a Brilliant Painter—Chemistry of Solar Rays—Microscopic Photography—Instantaneous Pictures—Eclipses—The Splendid Corona—Startling Eruptions on the Sun's Surface—Lord Byron's Apostrophe to the Sun—Mercury—Venus—Galileo's Riddle—Mars—Jupiter—Saturn—Uranus—Neptune.

AND see—the Sun himself!—on wings
Of glory, up the East he springs.
Angel of light! who from the time
Those heavens began their march sublime,
Has first of all the starry choirs
Trod in his Maker's steps of fire!

Blest power of sunshine! genial day,
What balm, what life is in thy ray!
To feel thee is such real bliss,
That had the world no joy but this,
To sit in sunshine calm and sweet—
It were a world too exquisite
For man to leave it for the gloom—
The deep, cold shadow of the tomb!

THOMAS MOORE.

The resplendent body which shines over our heads occupies the centre of the group of worlds to which the earth belongs. Our planetary system owes its existence and life to the sun. It is truly the heart of this gigantic organism, as expressed in olden times by a happy metaphor of Theon of Smyrna, and its reviving pulsations sustain the long existence of the planets. Placed in the midst of a family as father, over which it has ceaselessly watched from unknown ages when the worlds left their cradles, it governs and directs, both in the maintenance of its interior economy, and in the individual part which it fills in the sidereal creation. Under the impulses of the forces which emanate from it or of which it is the pivot, the earth and our companions, the planets, gravitate round it, imbibing in their eternal courses, the elements of light, heat and magnetism which constantly renew the activity

of their life. This magnificent body is, at the same time, their support in space, the fire which warms them, the lamp which lights them, and the fertile source which pours out on them the treasures of existence. It is he who permits the earth to float in the heavens, held by the invisible network of the planetary attractions; it is he who guides it in its way and distributes to it years, seasons, and days. It is he who prepares a new clothing for the sphere yet frozen in the nakedness of winter, and who invests it with a luxuriant dress when it inclines its pole covered with snows towards him; it is he who gilds the harvests in the plains and ripens the heavy grape on the warm hills. It is this glorious body which, in the morning, spreads the splendor of the day over the transparent atmosphere, or rises from the sleeping ocean, which he will transform into charitable dew for the thirsty plains; it is he who forms the winds in the air; the twilight breeze on the shore; the ocean currents which traverse the waters. It is, again, he who sustains the vital principles of the air we breathe, the circulation of life in the organic kingdoms, in a word, the regular stability of the world. Lastly, it is to him we owe our intellectual life and the collective life of entire humanity, the perpetual food of our industry, and more than this, the activity of the brain which allows us to clothe our thoughts with a form, and mutually transmit them in the brilliant intercourse of intelligence.

A PRINCELY RULER IN THE SKY.

What imagination is powerful enough to comprehend the extent of the sun's action on all the bodies subjected to its influences? More than a million times larger than the earth, and five hundred times larger than all the planets together, he represents the whole planetary system; and this system, which is a mere nothing compared with the stars, he draws through the deserts of space; and these worlds follow him at his will like dark passengers carried away by a splendid vessel on an endless sea. He makes them revolve round him, that they themselves may imbibe in their course the support of their existence; he governs them with his royal power and regulates their formidable movements.

But what is the nature of this powerful body whose action is so universal—what fire burns in this vast censer—what are the elements which constitute this splendid globe? Does it contain in itself the conditions of an infinite duration, or is the earth rather destined one day to see this lamp of life extinguished and revolving henceforth in the darkness of an eternal winter? These questions belong to a lawful curiosity, and we wish that a satisfactory answer could be made to them. When we wish to appreciate the nature and greatness of a high

person, we do not generally seek to prove his defects, to study the blemishes in his character; this would be a singular way of judging his value; and even were this so we owe it to human imperfection, from which the greatest of us are not free. But if referred to a being whose distinctive character lay precisely in being not only of a magnificent purity, but also the source of all light and purity, people would not seek for spots to understand him.

Indeed, the people were astonished 260 years ago, when King Sun, the god of day, was accused by the telescope of being constantly covered with spots, and would it not be still more astonished if it discovered that these spots were precisely the only means that the sun gives us to penetrate his nature? They almost believed on this occasion, that pride is in the inverse ratio of worth. The official *savants* of that time, the theologians and disciples of the school of Aristotle, were not willing to believe anything. The provincial father of the order of the Jesuits at Ingolstadt, replied to Scheiner, one of the first after Galileo who had seen the sun and its spots through a glass, that Aristotle had proved that, in general, all stars were incorruptible, and that the sun in particular was the purest light possible, consequently that the pretended spots of the sun were in the glasses of his telescopes or in his eyes. When Galileo made the same observation, the Peripatetics exerted themselves to prove to him, books in hand, that the purity of the sun was invincible, and that he had seen badly. And, indeed, who would have suspected such a thing? Spots on the sun! This must be an error, and an evident delusion. In times of grave events, the sun's disk lost, it is true, its light, as at the death of Julius Cæsar, and appeared to turn to blood.

It was Virgil himself who related the fact, and the author of the "Metamorphoses" confirms it in a touching testimony:

> Darkness, we see, emerges into light,
> And shining suns descend to sable night;
> E'en heaven itself receives another dye,
> When wearied animals in slumber lie
> Of midnight ease: another, when the gray
> Of morn preludes the splendor of the day.
> The disk of Phœbus, when he climbs on high,
> Appears at first but as a bloodshot eye;
> And when his chariot downward drives to bed,
> His ball is with the same suffusion red.

But these were exceptions, and it would have been great rashness to conclude that the orb of day was subject to corruption. However, the sun has spots, and the most curious fact is that these spots have enabled us to know its nature and physical constitution, whilst without

them we should not have been able to acquire the slightest notion of the disposition of this great body.

Let us see then in what the spots of the sun consist. Generally, this is the aspect which they present to us in the field of the telescope:

A TYPICAL SUN-SPOT.

Two very distinct portions are noticed; at the centre a well-defined black region. Around it a region not so black or grayish compared with the surface of the sun which surrounds it. The central part has received the name of "umbra": sometimes at the centre of this part is

noticed a more intense dark spot, which is called "the nucleus." The exterior region of the spot has received the name of "penumbra." When it is stated that the centre of the spot is black, this expression must be understood as relative to the general surface of the sun; for this centre, however dark it may appear by contrast, has been found of a light equal to two thousand times that of the full moon.

We may be led to the belief that these spots, generally invisible to the naked eye, are insignificant movements carried on on the sun's surface, and of small extent. It is not so. They are daily and very important phenomena. Some of them have been known to measure 80,000 miles, that is to say, they are ten times larger than the earth. Our globe falling into most of them would be lost as in a well. Besides being of this size, they are also the seat of various actions and prodigious phenomena. They are not formed suddenly as a whole, but increase to the limit they attain, and afterwards diminish. Some only last a few weeks, others months. Now the movements with which they are animated, either for their increase or diminution, or in their internal action, are sometimes of unheard-of rapidity. Lately, astronomers have followed a dazzling meteor passing through a group of spots with a velocity of eight thousand miles per minute. In other parts, they have watched circular whirlwinds, dragging into their commotion large spots like the earth, and swallowing them up in abysses with fearful velocity. Sometimes are seen the crests of stormy waves extending over parts of the penumbra, and rising on the white surface of the sun as a still whiter and brighter substance, doubtless projected in their ebullition by interior forces. There have, besides, been seen immense bridges of fiery substances cast suddenly over a black spot, crossing it from one end to the other, like an arch of luminous striæ, which sometimes is dissipated, and falls down into the abysses of lower whirlpools.

TERRIBLE COMMOTIONS IN THE SUN.

This body, which each day pours out over our heads such a pure and calm light, is the seat of powerful actions, and prodigious movements, of which our tempests, hurricanes and waterspouts give us but a slight idea; for these gigantic disturbances are not performed, as here, in an atmosphere of a few miles thickness and over a few miles area, but in proportions as vast as its volume. One of the first results of the observation of solar spots was to discover that the sun turns on its axis in about twenty five of our days.

Indeed, if we watch for several consecutive days any of the spots visible on the solar surface, or a group of spots, or even the whole sun, we shall not be long in remarking that the spots are all animated with

the same movement from one edge to the other of the solar disk. If, for instance, we begin to follow a spot from its appearance at the eastern edge, we observe that it advances slowly towards the middle of the body, which it reaches about seven days after its appearance; then it passes it, and continues its course towards the west, and seven days afterward it reaches the edge and disappears.

After a period of fourteen days, employed in traveling over the opposite hemisphere, it reappears at the same place, and follows the path previously pointed out. These observations evidently show that the sun turns on an axis. This rotation of the sun shows its spots in the following manner: If the period of the reappearance of the spots is from twenty-five to twenty-eight days, this does not refute the number of twenty-five days before mentioned. The difference proceeds from the earth not remaining immovable in space, but turning round the sun. Now, in its translatory movement round the sun, the earth advancing in the direction of its rotation, sees the spots two days and a half after they have disappeared at the point where the earth was at the commencement of the observation.

AN ENDLESS DAY.

This rotary movement takes place from west to east, like that of the earth and all planets of the system. Thus, by telescopic examination, this body declared fixed and incorruptible in antiquity, is stripped of its two distinctive qualities. The diurnal rotation of the sun is twenty-five times longer than that of the earth; but it differs essentially in its immediate consequences, because it does not produce on the surface the alternate day and night, which we derive from this movement. It cannot, then, be stated that this is the length of the solar day, for it is not the sign of a succession of light and darkness: the sun's day does not go out, and the twilight of evening does not pale it. This world lives in a permanent light.

It neither knows our seasons nor years, and the elements of our calendar cannot be applied to its astronomical *rôle*. It seems that the rapid succession of things which constitute our time, and the changing series of phenomena which we experience, do not fall to his lot; continuance and endless duration are his characteristics; and he is freed from counting for his individual personal life the successive ages which, on our globe, measure life and overwhelm it with their number. The great variety of nature separates it from the rank of the planetary world; and it would be a profound subject of astonishment to an inhabitant of the earth if he were to visit a country so essentially distinct from ours, and to be able to establish a comparison between this strange world and his own.

The size of the sun exceeds the degree of our habitual measurements too much for us to hope to give a sufficient idea of it. In the matter of volumes, as in that of distances and times, the numbers too far surpass our ordinary conceptions to appeal to our minds, and every care that we take to represent them to ourselves remains almost sterile. Nevertheless, a comparison will be able to inspire at least a nearer idea of the size to which we refer. If we placed the terrestrial globe in the centre of the solar globe, like a kernel in the middle of a fruit, the distance of the moon would be included in the interior of the solar body; the moon itself would be absorbed in it, and beyond the moon to the surface of the sun, following the same radius, we should still have to traverse a distance of 200,000 miles. From the earth to the sun are reckoned 91 millions of miles. It is on account of this great distance that this immense body only appears to measure a foot in diameter; and this explains why the ancients, and Epicurus in particular, did not believe it larger than that measure. This distance equally explains why it does not appear to us larger than the moon, which is only 240,000 miles away. From this it may reasonably be asked, how this distance from the sun to the earth could possibly be determined. The method is too complicated for us to explain it here in detail; but an idea may be given of it without exceeding the limits of this chapter.

THE EARTH FLOATING IN SPACE.

Between the sun and the earth there are two planets, Mercury and

Venus: the latter has rendered the greatest service in the study of the distance which separates us from the sun. As its orbit (the circumference which it describes round the central body) is nearly on the same plane as the earth's orbit, it happens from time to time that it passes between the sun and ourselves, and appears like a black spot crossing the luminous disk. This passage takes place at the singular intervals of eight years, 113½ years—8 years, 113½ years+8 years. At these valuable periods, astronomers of all countries forget their nationality, and listening to each other like brothers, place themselves so as to observe the passage of Venus in different countries. Two observers situated in the stations most distant from each other, note the two points where the planet, seen from each of their stations, seems to be projected at the same moment on the solar disk. This measure gives them the angle formed by two lines starting from their stations, and crossing each other on Venus, and passing on to the sun. It is the measure of this angle, made by observers placed on all parts of the globe, which gives what is named the parallax of the sun.

AN IMPERTINENT CLOUD.

At the transit of Venus, in 1761, a French astronomer, Le Gentil—his name should have preserved him from such disappointments on the part of Venus—was curiously requited for his love of science and his disinterestedness. Sent to India by the Académie des Sciences, he embarked with arms and baggage to observe the passage of the planet at Pondicherry. His great activity and ardor could not conquer the chances of the sea voyage; he landed a few days after the phenomenon had taken place. The obstacles irritated him and increased his courage. He took the heroic resolution of remaining for eight years in the midst of that unknown country, in order to compensate himself for his lost observation; he waited for the passage of 1769, and then made all desired arrangements to obtain a perfect observation. The year and the day at length arrived! The sky was clear and no obstacle hindered his long resolution from at last receiving its reward. But, alas! exactly at the moment when the black spot was about to enter on the solar disk, a small cloud formed in the atmosphere and remained before the sun until the moment when Venus left the disk, putting an end to the possibility of all observation. The astronomer again took the voyage to France with a stormy sea, which brought his days to a close. Le Gentil, of Galaisière, died in 1792, after having written an account of his travels. It will be more than a hundred years before the world will have another opportunity to observe a transit of Venus.

From considerations based on the magnetic action of the sun, we

may be led to believe that its light is of the same nature as the electric light, only incomparably more powerful, seeing that the elements which we have at command are infinitely inferior to those commanded by nature. However bright our electric foci may be, however dazzling their light, the whiteness of which astonishes us, when it is projected on the solar disk, the electric light has the appearance of a black spot.

THE SUN'S AMAZING HEAT.

The intensity of solar heat is not less difficult to conceive; the most intense of our furnaces, which rise to the temperature of white heat, does not give us a faint idea of it. However, the following comparisons will indicate its value. If we represent the sun under the form of an enormous globe built up of a million four hundred thousand terrestrial globes, and covered entirely with a stratum of coal fourteen miles thick, the heat which it pours out annually in space is equal to that which would be furnished by this stratum of flaming coal. This solar heat would also be capable of melting in one second a column of ice which would measure 1590 square miles at its base, and 192,000 miles high.

It is curious to inquire how much this gigantic body weighs. When astronomers place the sun in one of the pans of the immense scales with which they determine the weight of the stars, it is necessary for them to put in the other one, 350,000 terrestrial globes like our own to restore equilibrium.

Many of the chemical effects of the sun's light are, and long have been, familiar. Linen and cotton cloth exposed to it, for a length of time, as is well known, will be bleached; and fabrics dyed of certain colors will be faded, or changed into a different shade. Yellow wax laid beneath the solar rays will be turned white; and the colorless horn silver, in a few minutes, changed into a violet tint. And so of many other substances.

THE SUN AN INCOMPARABLE ARTIST.

If a piece of paper, or a finger, be dipped in lunar caustic, and then be exposed to the sun, it will quickly turn black. If initial letters or names be written on linen with what is called indelible ink, they will be at first quite pale, but by a short exposure to the sunlight they turn dark. If a sheet of paper be plunged into a solution of common salt, then dried, and again be dipped into a solution of silver, it becomes so sensitive to the action of the sunrays, that if ferns and leaves such as those represented in Fig. 1, be placed upon it, and then exposed to the summer's sun, the uncovered part of the paper will turn black, while that beneath the ferns and leaves will remain white, presenting an exact

impress of the whole group, as in Fig. 2. Nothing can give a more beautiful picture of them; the light works through the slender leaves, but not through the thicker and more compact stems, and thus copies all, even to the minutest veins. This process has been turned to important practical purposes; it has been of great service, for example, in military operations, where it was necessary to make quickly a copy of some map of which there was only one impression. If a duplicate had to be made by hand, it would require several days to accomplish it; nor would it then have been as correct as that printed by the sun in the above manner.

It is by the chemical action of the sun, as is well known, that the photographer brings forth his marvelous productions—productions

Fig. 1. WREATHS COPIED BY THE SUN. Fig. 2.

which are not only of pleasing personal interest, but of the greatest practical value in art, science, and literature. By the simple action of the sunrays upon certain substances overspreading the surface of metallic or paper tablets, he can obtain an accurate likeness of any person, place, or thing he may desire. In this way he is enabled to preserve for us the lineaments of those who have benefitted their race by their learning, their skill or their bravery. By the agency of the very rays which illumine the countenance and reveal the brilliancy of the laughing eye and the charm of the roseate cheek, he can at once secure for us a lifelike picture of the form and features we most admire and love. In the same manner he can copy the outlines and details of natural scenery with perfect fidelity. In his picture will be found every undu-

lation of the landscape, every projecting rock, every sinuous stream, each spreading tree, each grazing ox, the peasant's home, the village spire, together with every other object and feature in the scene—these, all these, he can faithfully transfer to his plate, in all their varied and delicate shades, by the agency of the sunbeams which illuminate the whole.

A PENCIL THAT PAINTS THE WORLD.

The chemistry of the solar rays, in our day, has become a most important auxiliary to nearly every branch of human study or investigation. By its means the traveler is enabled to bring home accurate representations of the scenery, inhabitants, and productions he has witnessed in foreign climes; the geologist, to secure unerring delineations of the marvellous fossils of the flora and fauna he has discovered in the deep strata of the earth; the astronomer, to present the transient appearances of the eclipses he has observed in the heavens; the meteorologist, to furnish a correct registry of his barometer and thermometer through each hour, each minute of the day; the antiquarian, to obtain a fac-simile of the ruined temples, broken statuary, and obscured inscriptions which he has found on the fields of ancient civilization and power; the botanist, to copy with nature's exactness the forms and parts of plants, the stamens, and corolla, and pistils, and pollen of flowers; and the anatomist, to exhibit the various organs and functions of the body, both in their normal and abnormal conditions.

As nothing is more general in its application, so nothing is more perfect and admirable in its execution, than the sunbeam. No object is too great, and none too minute for it to depict. It can give us large pictures, with every detail perfect and in its right proportion, of the minutest objects, such as insects and animalcula; and it can furnish us with microscopic pictures, equally correct, of objects huge or vast. This is achieved by the intervention of lenses that magnify or diminish the image. Microscopic photography is of great importance in relation to anatomic preparations, which quickly change and become decomposed; it is also of very essential help in the study of fixed and permanent bodies. Jewelry, and even toys are sometimes made, containing minute photographs beneath small magnifying glasses. When these are held before the eye, small transparent images, some of them portraits, some statues, and others writings, come into view in admirable perfection. Such things, however, serve rather for amusement than use. But there are cases where microscopic photography may prove of no little value and importance. It has been suggested that in this way the contents of ponderous volumes might be concentrated within a few square inches, and the books of a whole library be reduced within

the capacity of a single drawer. Though nothing of this sort, as far as the author is aware, has thus far been done, yet the process has been employed for other ends under most interesting circumstances.

EXTRAORDINARY METHOD OF CORRESPONDENCE.

Professor Hermann Vogel relates that during the siege of Paris, in 1870, the blockaded city held communication with the world outside by means of balloons and carrier pigeons. The first mode of communication was almost engrossed for political objects; the second only admitted the transmission of very minute writing. Letters, however condensed, could scarcely have been sent more than two or three at a time by a pigeon. In this case, microscopic photography presented a valuable means of concentrating many pages on a collodion film of only one square inch, and of expediting more than a dozen of such almost imponderable films packed in one quill. Dagrand, at Paris, who first prepared microscopic photographs, also set going the system of these pigeon despatches. All the correspondence which had to be diminished was first set up in type, and printed together on a folio page. A microscopic photograph was made of this folio page, contained in about the space of 1½ square inches. This collodion film, with the image upon it, was then glazed over by pouring leather collodion over it; that is, collodion containing a solution of glycerine. This glucose collodion easily dries, separates from the picture, and forms a transparent film; a membrane of this kind could contain as many as fifteen hundred despatches. At the place of arrival these membranes were unrolled, and then enlarged by the help of a magic lantern; a number of writers thereupon set to work to copy the enlarged despatches, and ultimately forwarded them to their respective addresses. Thus Paris corresponded, by the aid of photography, for six months with the world without, and even poor persons were able to let their relatives know that they still lived.

MAKING A PICTURE IN A SECOND.

Another marvellous fact pertaining to the chemistry of the solar rays is, the rapidity with which it produces its effects upon certain substances. A new negative process has lately been discovered; it consists in the use of a gelatine emulsion of silver bromide for the sensitive surface. With a plate thus prepared, a photograph may now be taken in one second of time which it formerly took thirty seconds to secure; and a plate can be prepared which needs an exposure of only one-sixtieth of a second, when a view is fairly lighted, to secure a soft and harmonious negative. Thus it appears that solar rays are capable of instantaneous chemical action, and of producing for us a perfect picture

of a man in full activity, or of an object in rapid motion. The likeness of an orator may be taken at the moment of his highest pitch of eloquence, giving not only his attitude and gesticulation, but the very expression of his features. A squadron of cavalry can be pictured as they advance with rushing speed to the deadly charge, each man, each horse appearing a distinct figure in the scene. Nay, a view has been taken in which the shadow and reflection of a swallow passing in the air over a pond were perfectly represented. How wonderful the workings of the laws of nature! how closely related all its parts! how admirably constituted every ray of the sun to move every atom to accomplish the purposes of Him who worketh all in all!

STARTLING CELESTIAL PHENOMENA.

The total eclipse occurs when the moon is near to the earth, and when her distance from us is such that her apparent diameter is sufficient to cover the entire disk of the sun. This is an event of great interest to the astronomer, both on account of its short duration and rare occurrence. The longest time an eclipse of the sun can be total is seven minutes; but often it does not exceed three or four minutes. And it takes place at any one locality only at distant intervals; for instance, at London, prior to the total eclipse of 1715, no such phenomenon had been visible for a period of 575 years.

THE SUN ECLIPSED.

Among all the evolutions of the creation, visible to us, no occurrence is more striking or impressive than this. "A total eclipse of the sun," says Lockyer, "is at once one of the grandest and most awe-inspiring sights it is possible for man to witness. As the eclipse advances, but before the disk is wholly obscured, the sky grows of a dusky livid, or purple, or yellow crimson color, which gradually gets darker and darker, and the color appears to run over large portions of the sky, irrespective of the clouds. The sea turns lurid red. This singular coloring and darkening of the landscape is quite unlike the approach of night, and gives rise to strange feelings of sadness. The moon's shadow sweeps across the surface of the earth, and is even seen in the air; the rapidity of its motion and its intenseness produce a feeling that something material is rushing over the earth at a speed perfectly frightful. All sense of distance is lost; the faces of men assume a livid hue,

flowers close, fowls hasten to roost, cocks crow, birds flutter to the ground in fright, dogs whine, sheep collect together as if apprehending danger, horses and oxen lie down, obstinately resisting the whip and the goad; in a word, the whole animal world seems frightened out of its usual propriety."

Celestial phenomena, also, attend a total eclipse, still more grand and imposing. A few seconds before the commencement of the total obscuration, the stars burst out, and surrounding the dark moon on all sides is seen a glorious halo, commonly of a silvery white light, which is called the corona. This radiates and extends beyond the moon, to a distance equal to her apparent diameter, and in some eclipses is observed to reach to a much greater distance. This luminous appendage is supposed to be the sun's atmosphere, which is not seen when the sun itself is visible, owing to its overpowering splendor. General Myer gives the following description of the corona, as observed by him from the summit of White Top Mountain, Virginia, 5530 feet above the level of the sea, this elevated station being chosen in order to escape the smoke and haze which generally prevail in lower regions: "The eclipse presented, during the total obscurations, a vision magnificent beyond description. As a centre stood the full and intensely black disk of the moon, surrounded by the aureola of a soft bright light, through which shot out, as if from the circumference of the moon, straight, massive, silvery rays, seeming distinct and separate from each other, to a distance of two or three diameters of the lunar disk, the whole spectacle showing as upon a background of diffused rose-colored light. This light was most intense, and extended farthest, at about the centre of the lower limb, the position of the southern prominence. The silvery rays were longest and most prominent at four points of the circumference, two upon the upper and two upon the lower portion, apparently equidistant from each other, giving the spectacle a quadrilateral shape."

REMARKABLE CORONA.

Great changes in the solar prominences, as a rule, take place only very slowly, or quite imperceptibly. In some cases, however, the change in the form of a prominence is so extraordinary, and occurs

with such rapidity, that it can only be ascribed to extremely violent agitations in the upper portions of the solar atmosphere, compared with which the cyclonic storms, occasionally agitating the earth's atmosphere, sink into insignificance.

Professor Respighi is of the opinion that the solar prominences are of an eruptive origin and of a gaseous nature, and that electric action in some form is concerned in producing these eruptions. He observed some prominences that exceeded three minutes, or ten times the earth's diameter, in height; and one prominence that was not less than twenty times the earth's diameter, or 160,000 miles in altitude. He also noticed that the formation of a prominence is usually preceded by the appearance of a rectilinear jet, either vertical or oblique, and very bright and well defined. This jet rising to a great height, is seen to bend back again, falling toward the sun like the jets of our fountains, and presently the sinking matter is observed to assume the shape of gigantic trees, more or less rich in branches and foliage. Gradually the whole sinks down upon the sun, sometimes forming isolated clouds before reaching the solar surface. It is in the upper portions of such prominences that the most remarkable and rapid transformations are witnessed; but a great difference is observed in the rate with which prominences change in figure. Their duration, too, is very variable. Some develop and disappear in a few minutes, while others remain visible for several days. He considers that the sharply defined bases of the eruptive jets prove that the eruption takes place through some compact substance, forming a species of solar crust. He also holds that the enormous velocity with which these gaseous masses rush through the solar atmosphere implies that the latter is of exceeding tenuity.

SINGULAR OUTBURST.

Professor Young, of Dartmouth College, by means of an instrument called "telespectroscope," witnessed the most remarkable outburst from the sun ever yet seen by man. "On the 7th of September, 1871, between 12.30 and 2 P. M.," he says, "there occurred an outburst of solar energy remarkable for its sudden violence. Just at noon I had been examining with the telespectroscope an enormous protuberance of hydrogen close on the eastern limb of the sun. It had remained with very little change since the preceding noon—a long, low, quiet-looking cloud, not very dense or brilliant, nor in any way remarkable except for its size. It was made up mostly of filaments nearly horizontal, and floated above the chromatosphere with its lower surface at a height of some 15,000 miles, but was connected with it, as is usually the case, by three or four vertical columns brighter and more active than the

rest. Lockyer compares such masses to a banyan grove. It was about 100,000 miles long by 54,000 high.

"At 12.30, when I was called away for a few minutes, there was no indication of what was about to happen, except that one of the connecting stems at the southern extremity of the cloud had grown considerably brighter, and was curiously bent to one side; and near the base of another at the northern end a little brilliant lump had developed itself, shaped much like a summer thunder-head. The annexed figure represents the prominence at this time, *a* being the thunder-head. What was my surprise, then, on returning in less than half an hour, to find that in the meantime the whole thing had been literally blown to shreds by some inconceivable up-rush from beneath. In place of the quiet cloud I had left, the air, if I may use the expression, was filled with flying *debris*—a mass of detached vertical fusiform filaments, brighter and closer together where the pillars had formerly stood, and rapidly ascending.

"When I first looked, some of them had already reached a height of nearly 100,000 miles, and while I watched them they rose with a motion almost perceptible to the eye, until in ten minutes the uppermost were more than 200,000 miles above the solar surface. This was ascertained by careful measurement. The velocity of ascent also, 166 miles per second, is considerably greater than anything hitherto recorded. A general idea of its appearance when the filaments attained their greatest elevation may be obtained from the accompanying cut (fig. 1). As the filaments rose they gradually faded away like a dissolving cloud, and at 1.15 only a few filmy wisps, with some brighter streamers low down near the chromatosphere, remained to mark the place.

BANYAN GROVE ON THE SUN.

"But in the meanwhile the little thunder-head, before alluded to, had grown and developed wonderfully into a mass of rolling and ever-changing flame, to speak according to appearance. First it was crowded down, as it were, along the solar surface (fig. 3, *a*); later it rose almost pyramidally 50,000 miles in height; then its summit was drawn out into long filaments and threads which were most curiously rolled backwards and downwards, like the volutes of an Ionic capital (fig. 2); and finally it faded away, and by 2.30 had vanished like the

other. The figures inserted in this paragraph show it in its full development; the former having been sketched at 1.40, and the latter at 1.55.

"The whole phenomenon suggested most forcibly the idea of an explosion under the great prominence, acting mainly upwards, but also in all directions outwards, and then after an interval followed by a corresponding in-rush. The same afternoon a portion of the chro-

Fig. 1. Fig. 2.

Fig. 3.

EXPLOSIVE PHENOMENA IN THE SUN.

matosphere on the western limb of the sun was for several hours in a state of unusual brilliancy and excitement.

Such are some of the marvelous phenomena made known to us by astronomical science. We can say with Byron in his brilliant apostrophe:

Glorious orb! the idol
Of early nature and the vigorous race
Of undiseased mankind, the giants' sons
Of the embrace of angels with a sex

More beautiful than they which did draw down
The erring spirits who can ne'er return.—
Most glorious orb! that wert a worship ere
The mystery of thy making was revealed!
Thou earliest minister of the Almighty,
Which gladdened, on their mountain-tops, the hearts
Of the Chaldean shepherds till they poured
Themselves in orisons? Thou material God!
And representative of the Unknown—
Who chose thee for His shadow! Thou chief star,
Centre of many stars! which make'st our earth
Endurable, and temperest the hues
And hearts of all who walk within thy rays!
Sire of the seasons! Monarch of the climes,
And those who dwell in them! for near or far,
Our inborn spirits have a tint of thee,
Even as our outward aspects: thou dost rise,
And shine, and set in glory.

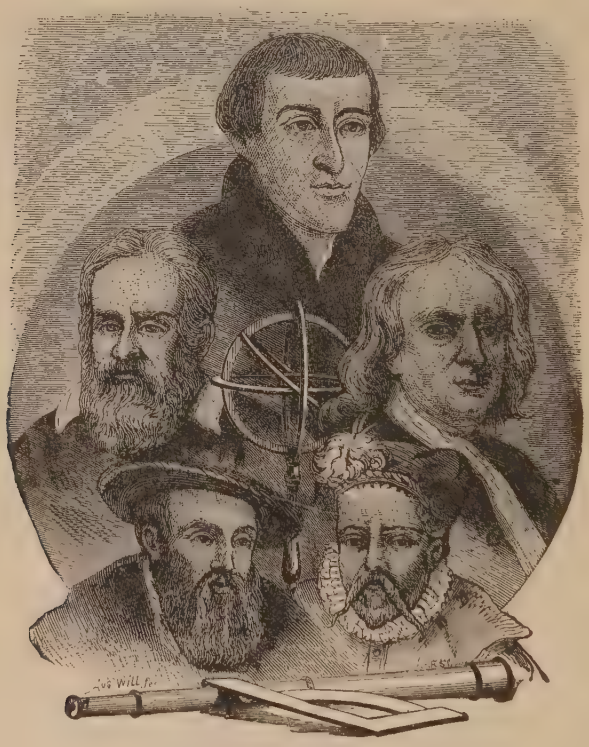
A fine family of planets is that over which the sun presides, and an accurate description of these will be of interest to the reader.

MERCURY.

Above the sun, in the west, when that radiant body sets, or again before its rising in the east, is seen sometimes a small white star, slightly tinged with red. The Greeks called it Apollo, god of day, and Mercury, the god of thieves, who take advantage of the night to commit their misdeeds; for they saw in it two different planets, one a morning and the other an evening one, as they did also for a long time in the case of Venus, the Egyptians and Indians doing the same. The first gave it the names of Set and Horus; the second those of Boudda and Rauhineya; names which bring to mind, like the preceding, the divinities of day and night. The Latins who, however, employed themselves very little with astronomy, in this respect remained in doubt. It has been only in later times that the identity of these two stars which, like Castor and Pollux, to which they are assimilated, never appear together, has been proved; its evening name, Mercury, was the one retained.

Being the first planet of the system, Mercury always remains absorbed in the royal radiation of the prince of day; also, like a courtier, it is deprived of its individuality and blended in the personality of the ruling star. It gains nothing and loses much, seeing that it had not the honor of being known to the founders of astronomy. Copernicus despaired of ever seeing it: "I fear," said this great man, "that I shall descend to the tomb without having seen the planet." And, indeed, he who had transformed the system of the world, and taken in hand each of the planets to place them round the sun, died without having

seen the first amongst them. Galileo was able to observe it, thanks to the glasses which he had invented, but it could not be said that he understood it sufficiently, as it was impossible for him ever to distinguish its phases. The adversaries of the new system opposed the first astronomers, Copernicus, Galileo, and Kepler, on account of the absence of phases in the planets Mercury and Venus. "For," said they, "if these planets revolved around the sun, they would change their aspect to our eyes, as the moon does, according as we see in front, in profile, or



CELEBRATED ASTRONOMERS.

COPERNICUS.

GALILEO. ISAAC NEWTON.

KEPLER. TYCHO BRAHE.

in rear, the illumined part, the side in fact which they turn towards the sun."

Copernicus and his colleagues replied, "We do not distinguish any phases, it is true; but if it only requires them in order that you should adopt our system, God will cause that there may be some." Indeed there were some. By the observation of the irregularities visible in

the interior of the crescent or quarter, it has been observed that Mercury is rugged with high mountains, higher than those of the earth, although Mercury is a much smaller globe than ours. The existence of a denser and higher atmosphere than ours has been suspected. In the middle of the last century, one of the numerous romancers who feigned voyages to the planets, pretended to know that the mountains of Mercury were all crowned with beautiful gardens, in which grew naturally not only the most succulent fruits which served as food to the Mercurians, but also the greatest variety of dishes. It is better, perhaps, to believe this than to think with Fontenelle, that the inhabitants of Mercury are all mad, and that their brains are burned with the violent heat which the sun pours upon their heads. But until an authentic voyager has made us sufficiently acquainted on this head, we will confine ourselves to the astronomical elements of the planet. It revolves at a distance of 35 millions of miles from the sun; its diameter is 2960 miles; its day is 24 hours, 3 minutes, 28 seconds long; its year, 87 days, 23 hours, 14 minutes; and its seasons, 22 days only; its mass, compared to that of the earth, is only $\frac{17}{100}$; its density is three times more than ours, and bodies which fall on its surface travel 7.45 feet during the first second of fall; and, lastly, it receives six times and a half more light and heat than the earth does.

VENUS.

Thou little sparkling star of even,
Thou gem upon an azure heaven
How swiftly will I soar to thee
When this imprisoned soul is free

The young poetess who sang this charming song, Maria Lucrecia Davidson, escaped from her earthly prison towards her well-beloved star when she had scarcely seen her seventeenth spring blossom forth. Some ill-disposed minds have asserted that although Venus is beautful afar, it is frightful on a nearer view. We fancy our young and amiable readers are not of this opinion.

Indeed all the magnificence of light and day which we enjoy on the earth, Venus possesses in a higher degree. Like our globe, it is surrounded by a transparent atmosphere, in the midst of which are combined thousands and thousands of shades of light. Clouds rise from the stormy ocean, and transport into the sky, snowy, silvery, golden and purple tints. At morning and evening, when the dazzling orb of day, twice as large as it appears from the earth, lifts its enormous disk at the east or inclines towards the west, the twilight unfolds its splendors and charms. From here we can be spectators of this distant spectacle; for we distinctly see the daybreak and the close of day in the plains of

Venus. Day and night are of nearly the same duration as on the earth; the diurnal period of rotation of the planet is twenty-three hours, twenty-one minutes, seven seconds; it is consequently thirty-five minutes less than ours. Its year is two hnndred and twenty-four days. Its mountains are much higher than ours. They have been measured at the period when Venus presents itself to us as a crescent. The inequalities which are noticed in the interior of the crescent are the highest points of the surface which still receive the sun's rays after these have left the plain. The height can be concluded from the time that these light-points take to disappear. We have just spoken of Venus as a crescent. Like Mercury, this planet is situated between the earth and the sun; and the circle which it describes during its year is comprised in the circle which the earth describes round the same body. Hence it follows that at certain epochs the planet Venus is exactly between us and the sun; and then it presents its dark part to us, as its illuminated por-

CRESCENT AND SPOTS OF VENUS.

tion is naturally on the side of the sun. At other times, when it is to the right or left of the sun, it presents only a quarter. Lastly, when Venus is on the other side of the sun, it presents its entire illuminated portion to us.

The phases of Venus were seen for the first time by Galileo in the month of September, 1610, who beheld this spectacle with a joy impossible to describe, seeing that it eloquently testified in favor of the system of Copernicus, showing that like the earth and moon, the planets receive their light from the sun. When we say that these phases were for the first time seen in the month of September, 1610, you must not conclude that they did not exist before that epoch, but you must understand, that before that year no one had turned the telescope to the planet, and that with the naked eye, these phases are imperceptible.

GALILEO'S RIDDLE.

According to the custom of the period, the illustrious astronomer disguised his discovery under an anagram, to maintain the authenticity

of this discovery in case of rivalry, and to give himself time to continue his observations and to perfect them. He finished a letter with this phrase: "*Hæc immatura a me jam frustra leguntur, d. y.*" which means, "These things unripened and as yet hidden to others, are at length read by me."

Under this cryptogram, it would be difficult to discover the idea of the phases of Venus. Our fathers were very ingenious, and in the present time certain discoveries would not have been so greatly contested, if astronomers had sometimes used the same ruse. In this phrase there are thirty-four letters. By placing them in another order, we get these words, in which the whole discovery is elegantly inscribed: "*Cynthiæ figuras emulatur mater Amorum.*" "The mother of the Loves puts on the phases of the moon."

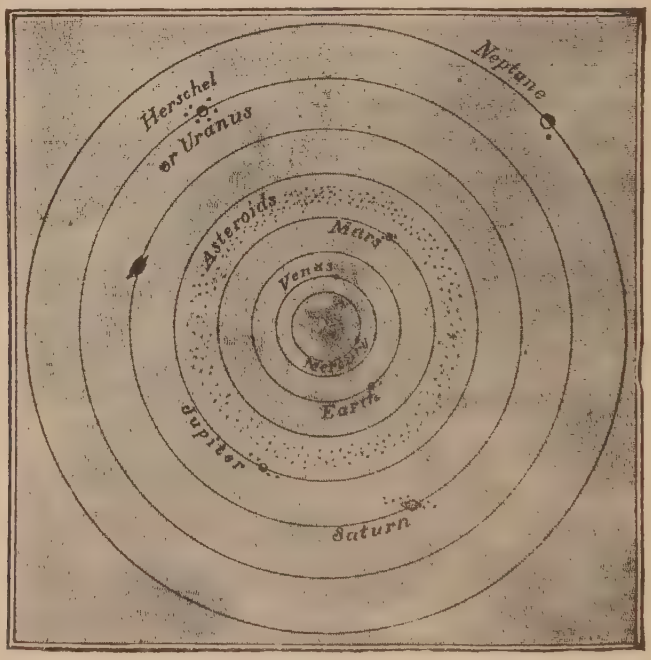
Galileo was very cunning. Two months later, Father Castelli asking if Venus had phases, he replied, "My state of health is very bad, and I find it better to be in my bed than in the dew." It was only two days before the end of the year that he announced the above discovery.

This globe presents the greatest semblance to our own, and it has nearly the same astronomical elements, size, volume, weight and density; only it is much nearer to the sun than we are. From the commencement of ancient poetry, its position near the sun, which causes it to appear at sunrise and sunset, attracted contemplative minds towards it. In the middle ages, a worthy father took an ecstatic voyage in the heavens, and in Venus saw only young people of ravishing beauty, living in the midst of perfect happiness; in his sight, these were the guiding spirits of the planet Venus, for in olden times it was believed that a legion of angels or genii presided over the direction of each of the heavenly spheres.

MARS.

All the maledictions of mortals have fallen on Saturn and Mars. Beginning with war, that scourge of humanity of which it will have great trouble to rid itself, all public misfortunes caused by power have been attributed to Mars, which, if it knew what the earth thought of it, ought to regard us with an evil eye. It is, nevertheless, innocent of all these calumnies, and we ought not to speak ill of it, presenting, as it does, most resemblance to ourselves. Indeed the world of Mars resembles the earth so much, that if we happened one day to be traveling there and lost our way, it would be almost impossible to recognize which of the two were our planet. Without the moon, which would charitably remove our uncertainty, we should run a great risk of arriving amongst the inhabitants of Mars, expecting to descend into

the United States, or some other terrestrial quarter. Indeed, the planet Mars in our telescopes presents the same aspect as the earth must do to the inhabitants of Venus; a circular disk, rather flattened, turning on itself in about twenty-four hours, furrowed from time to time by fleeting clouds, diversified with here dark and there light plains; revolving obliquely on an axis enveloped with an atmosphere and with snow-covered poles. On this planet the seasons are nearly of the same intensity as our own, but their duration is twice as long; for Mars only accomplishes its annual revolution around the sun in 1 year, 321 days, and 22 hours, or 1 year, 10 months and 21 days.



SOLAR SYSTEM.

We may notice certain differences between the aspect of Mars and our own world. Whereas the earth seen at a distance must appear tinted with green, on account of the color of its atmosphere, its vegetation and waters, Mars is shaded with red, and it is this shade which gives it the reddish light with which it is seen to shine. Doubtless this characteristic color is produced by the dominant coloring of its surface; either its soil is thus colored like that of our deserts, or its seas, its vegetation, or the vapors rising into its atmosphere, are chiefly clothed with this shade. Nevertheless, the poles always preserve their brilliant light. In 1837, it once happened that Mars was, during the

observations, completely darkened by a cloud, with the exception of the poles which stood out distinctly.

Removed from the sun to a mean distance of 139 millions of miles, and encircling the earth's orbit in that which it describes round the central body, there are certain periods where these planets are very near together; that is, when they are both on the same side of their path with regard to the sun. Sometimes they are not more than 48 millions of miles distant from each other. Mars has two satellites, which have been discovered at a comparatively recent date.

The conjunction of two planets is the point of their orbits where they are on the same side of the sun, and are the nearest possible to each other; the term opposition is given to the opposite point of their paths, when they are on opposite sides of the sun, except in the case of Mercury and Venus. In olden times these positions greatly exercised the sagacity of horoscope-seekers, and human destinies received fancied predictions, according as the god of war was in conjunction in such and such a sign of the zodiac. The interior planets, Venus and Mercury, whose orbits are enclosed in that of the earth, have no opposition, but they have two conjunctions; the superior, when the planet is beyond the sun and in one right line; the inferior, when it is situated between the sun and the earth. The exterior planets, those which inclose the terrestrial orbit, and of which Mars is the first, have only the superior conjunction.

At about 80 millions of miles, beyond the planet Mars, between the orbit of this planet and that of Jupiter, we meet with the group of small planets, of which we have already spoken. These are very little worlds, if even they deserve this name, which have scarcely the extent of a province, or even a department. They gravitate in this zone in considerable numbers, for there may exist several thousands. Perhaps they are *débris* of a larger world, shattered by some catastrophe; perhaps they have been formed in this region of space in the fragmentary state in which we now see them.

Putting aside the title of original greatness of these asteroids, and the fate which attends them, let us traverse their colony, and beyond it get near the most magnificent of the worlds of our system.

JUPITER.

She said:
Oh! that it were my doom to be
The spirit of yon beauteous star,
Dwelling up there in purity,
Alone, as all such bright things are;—
My sole employ to pray and shine;
To light my censer at the sun!

THOMAS MOORE.

The orb of Jupiter is more bulky than all the other planets of our system: it is only a thousand times smaller than the sun, which makes it, if we remember the volume of that radiant body, from fourteen to fifteen hundred times larger than the terrestrial globe. Also, although it revolves in an orbit nearly 475 millions of miles distant from the sun, and receives a much fainter light than that received by the earth, its size is evidenced by the light with which it shines during our starry nights, equal and often superior to that with which Venus shines. Jupiter is therefore reckoned among the most beautiful objects of the heavens. As it is always in the zodiac, and when Venus is visible in the evening, it is always in the west, it is easily recognized. At whatever period of the year, therefore, you see a very bright star, either in the east, or high up among the zodiacal constellations, you may be certain that it is Jupiter.

A BEAUTIFUL WORLD.

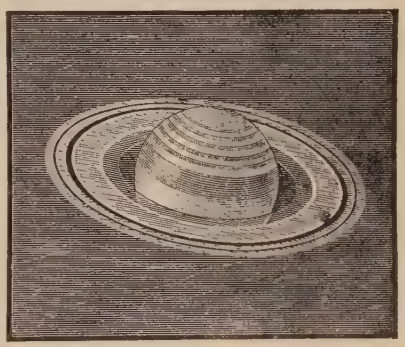
This planet is a charming one, so far at least as we are able to judge from afar and without going there. To begin with, a continual spring rejoices its surface. If it is ornamented with flowers, which we do not doubt, though we know not of what these flowers consist, they do not only survive "the span of a morning," as our roses do, but live much longer. Scarcely have the oldest begun to dry up and fade but they are replaced by lovely buds, opening before the first have died away. Not only is the Jovian year equal to twelve of ours, but it is scarcely known when the yearly period begins or ends.

Then Jupiter presents a surface 126 times more extensive than the terrestrial surface. We speak of surface, not volume. Now, a hundred and twenty-six earths placed side by side, and on which the human race would be able to spread itself at will, would constitute a very fine country. We ought, then, not to doubt that such an empire has been formed to serve as an abode for a race of beings, venerable and worthy of our respect. We reason thus of Jupiter, because we have had the necessary means to measure and appreciate it at its just value. But it is necessary to add something to complete the comparison between this world and our own.

Because we find, by observation of the Jovian planet, excellent reasons for believing that its inhabitants are very favored, it does not follow that the aforesaid inhabitants make similar reflections on us. There is a very good reason why they do not occupy themselves with us—they are probably not acquainted with our existence. And, indeed, if ever, at a future time, more or less distant, you should happen to inhabit Jupiter, you would have great trouble to discover your old country. To do so you would have to rise a little before the sun (and mark

there are only five hours from the setting to the rising of this body on Jupiter) and five or six minutes before the rising look to the east for a very small white star. With good eyes, you perhaps would perceive it. In this case, you would know that our earth exists. Again, you would make the same search six months later, at the west, a few moments after the setting of the sun. Such is the condition of the inhabitants of Jupiter with regard to us. They can never see the earth during the night, although it is precisely in the middle of clear nights that we are best able to observe this magnificent planet.

If you were to take a journey to the planet Saturn, which is scarcely more than 900 millions of miles from us, you would feel on approaching it an unspeakable astonishment, to which certainly no sentiment of surprise felt on the earth can be compared. Imagine an immense globe, not only of the size of the earth, but as large as 734 earths put together. It revolves on an axis with such rapidity, that in spite of its size it accomplishes its diurnal rotatory movement in about ten hours. Around it, at 20,000 miles distance, above its equator, an immense ring, flat and relatively very thin, surrounds it on all sides. This ring is followed by a second, and this one by a third. Now this system of multiple rings is only a few miles thick, whilst its diameter is 166,000 miles. They do not remain immovable, but are carried along with a circular movement round the planet, this movement being of still greater rapidity than that of the planet itself. The domain of the Saturnine world is not confined to this. Beyond the ring, eight moons are seen revolving in the heavens around this strange system; the nearest of these satellites is separated from the planet's centre by a distance of 120,000 miles; the most remote has an orbit of 2,293,000 miles from the centre of the planet. Saturn then governs a system which measures not less than four and a half millions of miles in diameter.



THE PLANET SATURN.

By the side of this world the earth makes but a poor figure, and Micromegas, in the fable, was to be pardoned when on coming out of Saturn he mistook the earth for a mole-hill. Its years are thirty times longer than ours; of its seasons each lasts seven years and four months; a change remarkably like that which distinguishes our own diversifies them; a regenerating spring suc-

ceeds the rigor of winter; summer and autumn pour forth their alternate fruits.

URANUS.

On the 13th of March, 1781, between ten and eleven in the evening, a quondam organist of Halifax, who had himself made the best telescope then in existence, observed the small stars of the constellation of the Twins, with a telescope of nine feet focal length, and a magnifying power of 227. During his observation he perceived that one of the stars presented an unusual diameter. Astonished and desiring to prove the fact, he took an eyepiece magnifying double, and found that the diameter of the star increased whilst that of the others remained the same. More and more surprised, he fetched his magnifying power of 932, being quadruple that of the first, and again observed it. The mysterious star was still larger. From that time, he no longer doubted; this was a new body, not a star. He continued the following days, and noticed that it slowly moved among the others. It was then a comet. Herschel described it to the Royal Society in a paper entitled, "Account of a Comet"; and the scientific world of all countries registered this new cometary body, and set about observing it in order to determine its orbit. If Herschel had directed his telescope towards the constellation of the Twins eleven days sooner, said Arago, the real movement of Uranus would have escaped him, for this planet was on the second at one of its stationary points. It may be seen by this remark on what the greatest astronomical discoveries depend.

The name of the astronomer was then so little known that it is found written in every way; Mersthel, Herthel, Hermstel, Horochelle. Nevertheless, the discovery of a new comet was an event important enough to induce a study of the new body. Laplace, Mechain, Boscowich, and Lexell, endeavored to determine the orbit along which it moved. Many months elapsed before the astronomers guessed that it was a real planet; and it was not until after having observed that all the imagined orbits for the pretended comet were soon contradicted by observation, and that it probably had a circular orbit, much more distant from the sun than Saturn, until then the boundary of the system, that they agreed to regard it as a planet. Still this was but a provisional agreement. It was, indeed, more difficult than was thought thus to increase unscrupulously the family of the sun. Many reasons of propriety were opposed to it. Old ideas are tyrannical. It had been the custom for so long to regard the venerable Saturn as keeper of the frontiers, that it required a great effort to determine upon withdrawing these frontiers, and guarding them by a new world. It happened in this as in the discovery of the small planets situated between Mars and

Jupiter. Two years before this discovery was made, Kepler imagined, for the harmony of the world, a large planet in this space, and the most frivolous and senseless considerations were urged against it. For instance, they reasoned: "There are only seven openings in the head, the two eyes, the two ears, the two nostrils, and the mouth; there are only seven metals, there are but seven days in the week; therefore there are but seven planets," etc. Considerations like these, and others no less imaginary, often hinder the progress of astronomy.

When William Herschel, having been present as a spectator at the debates created by his discovery, came to the belief that his comet was a planet situated at the confines of our system, he claimed the right, which was indisputably his, of christening the new star Animated by a lawful motive of gratitude towards George III., who had appreciated his astronomical worth and given him an annual pension, he at first proposed the name of Georgium Sidus, George's star, as Galileo had called the satellites of Jupiter discovered by him, the Medici's stars, and as Horace had said, Julium Sidus. Others proposed the name of Neptune, in order to preserve the mythological character; Saturn would be thus found between his two sons, Jupiter and Neptune. Others added to Neptune the name of George III., others again proposed Astræ, considering the goddess of Justice was as far as possible from the earth; Cybele, mother of the gods; Uranus, the most ancient of all to whom reparation was due after so many hundred years of neglect. Lalande suggested Herschel's name to immortalize the discoverer. These two denominations prevailed. For a long time the planet bore the name of Herschel, but custom has since declared for the mythological appellation of Uranus. The discovery of Uranus has increased the radius of the solar system from 872 millions of miles to 1753 millions. Compared with the preceding, this planet is not very large, for it is scarcely eighty-two times more bulky than the earth. Its seasons last twenty-one years, of ours, and its years eighty-four years and a quarter. Around it revolve eight satellites, six of which Herschel himself discovered.

NEPTUNE.

The world which here marks the frontiers of the system, is situated at such a distance from the sun, that the light and heat which it receives from it are thirteen hundred times less than that with which the earth is enriched, so that no great difference can be noticed between the day and night of this distant planet, and to it the solar disk is nearly reduced to the smallness of the stars.

2746 millions of miles is the distance which separates this world from the sun. Until the time of its discovery, the frontiers of the planetary

system already augmented by the addition of Uranus, were confined to an orbit of 1753 millions of miles in radius. Does, this, then, imply that these are the utmost limits, and that analysis will not be able to go further and add fresh members to the already increasing family of the sun? No. When observations spreading over a long series of years shall have been made, and compared with each other, the universal law of gravitation by which the existence of this planet was known before ever being perceived in the field of the telescope, will prove the existence of others if others exist, which is probable; and the progress of optics following equally the progress of astronomy will give to the visual power, again magnified, the power to discover such distant planets which will, doubtless, be of the sixteenth or seventeenth magnitude.

Imagine a body a hundred times larger than the earth carried into the gloomy deserts of space to the distance of the Neptunian orbit. It floats, isolated, in the obscurity of space, following an immense but purely ideal curve, and which exists only in theory in the decree of eternal laws. It follows this curve, and revolves on itself without ever deviating from its path. To finish its immense route and return to its starting point, it requires 164 years. It will return and again pass through this mysterious point of space, which it passed nearly two centuries before. What power moves it? What hand guides this blind body through the night of the distant regions, and what causes it to describe this harmonious curve? It is universal attraction.

Instead of following a regular ellipse round the sun, the planet Uranus underwent, from some unknown cause, a perturbation, which retarded its theoretical path, and extended its circular curve towards a certain point, as if an atrractive cause had seduced the traveller from its path, and had made it deviate from its proposed route. It was calculated that, in order to produce at this point an attraction of such intensity, it was necessary that there should be on that side of the system beyond Uranus, a planet of a certain mass, and at a certain distance. Two astronomers, the one French, the other English, set to work at the same time in this research. They discovered the disturbing cause theoretically, and observers directed their telescopes to the spot thus indicated by theory. They were not long in actually discovering the body near the spot pointed out, and they were able to announce to the world the most brilliant confirmation of universal gravitation.